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April 1946
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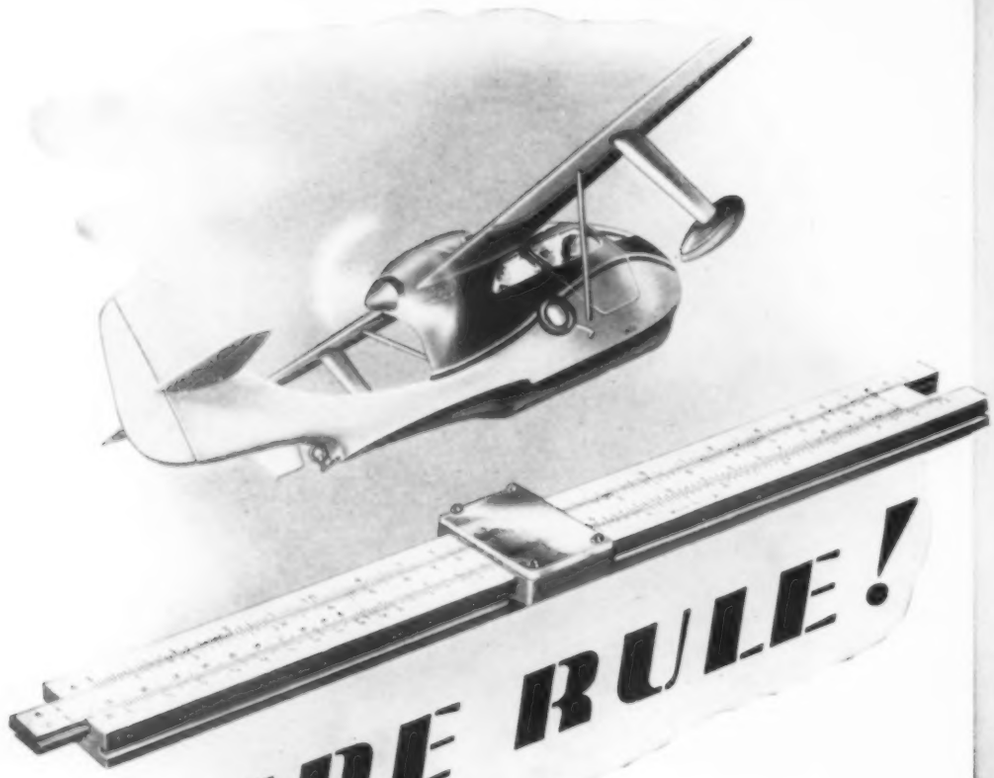

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REVVING UP

LAST MINUTE ROUNDUP: A 35 per cent load factor was averaged during the first week's operation of the new Dallas-Fort Worth Air Taxi Service which operates 12 Noorduyn trips daily between Love Field and Meacham Field on a 15-min. block-to-block schedule. Fare is $2 plus 30 cents tax, a bit cheaper than American and a bit higher than Delta. Capacity of the Noorduyn is seven passengers plus pilot, four passengers sitting on a comfortable couch lengthwise the fuselage, two on a rear seat and one up front. Fueling is done only once a day. The taxi operation is a division of Texas Air Transport, Inc., of which D. Harold Byrd of Dallas is president. Pete Cavender is secretary-treasurer and general manager and pilots are Tom Hatten and Charles Bloom. . . . The two-place, 50-hp. American Eaglet manufactured in Fort Worth has been ATC'd. . . . Robert J. Smith, former vice president of Braniff Airways, is president of Aviation Activities, Inc., a new firm headquartered in the "B" plant of the old North American factory at Dallas. Aviation Activities is handling worldwide distribution of some 11,000 war surplus transport engine parts under contract with War Assets Administration.

Hugh Smith, succeeded as vice president of American Airlines in charge of operations by Larry Fritz, formerly of TWA, is now vice president in charge of American's Tulsa project and its pilot training base at Ardmore, Oklahoma. AA is installing its system-wide maintenance and overhaul base in the old Douglas Modification Center at Tulsa and has bought a 12-story office building there. . . . Because passengers complained, American quit selling space in the center seat of its DC-4's 3-seat rows the second night the big planes operated. Talk is that the 55-passenger planes will be converted to 50-passenger capacity to give the customers more seat room.

Priced from $344 to $4,747, a total of 2,378 surplus new aircraft engines ranging from 65 to 1,500 hp. have been put up for sale on a "first served" basis. Offers must be made to the Aircraft Division, War Assets Administration, 425 Second Street, N. W., Washington 25, D. C. . . . Don Marshall, widely-known aircraft sales representative, formerly heading Lockheed's sales in the Southwest and manager of the Lockheed Modification Center in Dallas during the war, has been appointed sales manager of Engineering Laboratories, Inc., of Dallas and Tulsa. He was cited by the War Department for outstanding production achievements of the Modification Center. . . . Leasing of surplus transport aircraft will be discontinued effective July 1 by War Assets Administration, but over 250 leases now in effect or under negotiation will not be affected. . . . Prices on new and improved Edo floats for lightplanes are considerably lower in some models than prewar prices. Here are Edo's new prices: Model 1320 (Aeronca, Cub and Taylorcraft class), $995; Model 1650 (Cessna 140 class), $1,250; Model 2000 (Piper Cruiser class), $1,350; Model 2425 (Stinson 150 class), $2,195; Model 2880 (Fairchild 24 class), $2,495. . . . CAA has published two new manuals, *Realm of Flight* and *Path of Flight*, compressing into 73 pages information on navigation and meteorology previously available to private pilots only in texts totalling 597 pages. Priced at 60 cents and 40 cents, respectively, they are available from the Government Printing Office in Washington. . . . On April 5 CAA resumed its prewar practice of accepting flight plans from any airmen wishing to file them. . . . Recent CAA appointments include: Ora W. Young, formerly Superintendent of Safety Regulation and Assistant Administrator for the First Region, is now First Region Administrator; Donald R. Harvey, former Office of War Information personnel director, is the new personnel officer for CAA; William E. Kline has been named Assistant Administrator for Federal Airways, and M. Justin Herman has been appointed Assistant Administrator for Aviation Training, succeeding Dr. Bruce Uthus, who resigned to go with TWA.

SOUTHERN Flight

Including MODERN AIRPORTS

Thirteenth Year of Progress With Aviation

APRIL, 1946 VOL. XXV. NO. 4

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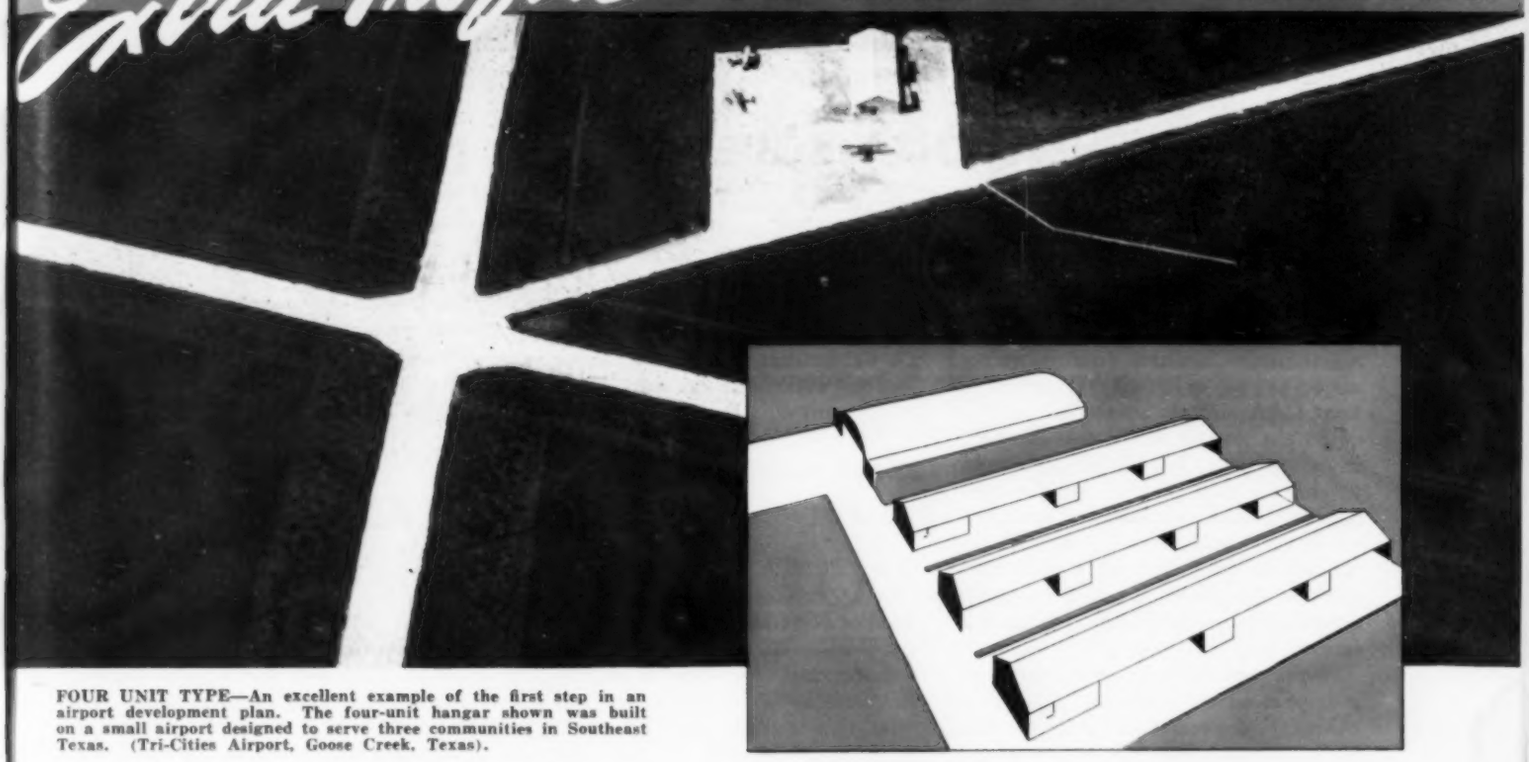

FOUR UNIT TYPE—An excellent example of the first step in an airport development plan. The four-unit hangar shown was built on a small airport designed to serve three communities in Southeast Texas. (Tri-Cities Airport, Goose Creek, Texas).

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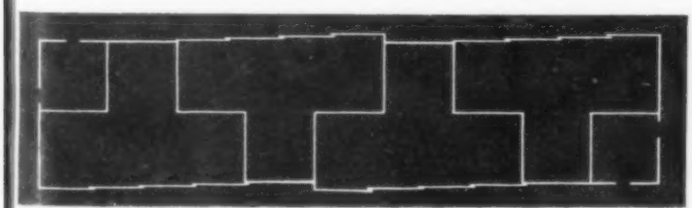

THE NESTED-TEE—Floor plan above shows individual stall for each ship, the extra rooms at two corners for office, club room, shop, store room or other special purpose.

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JUST AMONG OURSELVES

Editorials and Comment

THE WHEEL THAT SQUEAKS

VARIOUS segments of non-scheduled aviation have become unduly exercised over the Civil Aeronautics Administration's announced plans to warehouse a lot of spare parts and to arrange for some maintenance facilities (not including major engine overhauls) in order to keep CAA aircraft in the air instead of on the ground as the case has been in recent years. Such loud howls went up that the noise reverberated throughout the walls of Congress and sent scores of people scurrying to and fro around the fifth floor of the Department of Commerce building in an attempt to take CAA off another hot seat.

We're not in a position to pass judgment on the perspicacity or practicability of the CAA "keep 'em flying" program, but we do know the present system of maintenance by contract isn't worth a tinker's damn. The reason for this state of affairs is clear. The Bureau of the Budget simply doesn't provide enough funds for airplanes, replacement parts or maintenance. As a consequence, the very agency charged with the responsibility of fostering and developing civil aeronautics in the U. S. has to send its official representatives around the country in Ford automobiles. Few people in aviation are hollering about that. Administrator Ted Wright and his staff are seeking a solution. The present situation is unbearable.

People who know how things operate in Washington are the first to tell you the wheel that squeaks the loudest gets the most grease. Want an example on aviation legislation? Then look at the airport bill which came out of the committee last month according to the way the municipalities wanted it. Funds will be channelled through hundreds of towns and cities instead of the forty-eight states — because the municipal boys squawked louder than the states.

One of the most ridiculous charges made against the CAA plan is that the government is going into competition with private enterprise. If the truth were known, we think that some people in aviation are so used to living off the government money they fear they couldn't exist without it. Aviation would be far better off if the non-scheduled airport operators paid more attention to providing adequate, economical and dependable service to John Q. Public than to keeping their noses in the government tax trough.

The present tempest in a teapot points up one of our basic weaknesses in this flying game—when the aviation wheel finally begins to squeak loudly, it's usually against somebody else in the aviation family. As a house divided against itself we can not hold out much hope of help from Congress. Our wheel squeaks too weakly on constructive, necessary and intelligent aviation legislation and too loudly when we fight against ourselves.

☆ ☆ ☆

REQUIRED READING

ONCE in a blue moon these columns recommend a new book. *The Case Against the Admirals* by William Bradford Huie is such a volume, and, we hope, is destined to be read by every American citizen who desires that this nation never again stand so close to the brink of defeat as it did in the war just ended.

It is a very serious charge to blame "the admirals" for tragic losses and near defeat. But there is abundant evidence to prove it a truthful accusation—evidence stated fearlessly and with fairness by Author Huie and abundantly substantiated by the record. Neither the military nor the public can afford to ignore such a significant indictment.

The fight for and against unification is now coming to a head. The fate of co-equal status for air will be decided within a matter of weeks. The matter now rests in the hands of your Congressman and ours. *The Case Against the Admirals* probably will make your blood boil; but it also will remind you that the thirty-year fight for air power goes on—and that it's far from being won.

☆ ☆ ☆

YOUR MONEY'S WORTH

WE'VE had the pleasure of taking a half dozen demonstration flights in as many postwar personal airplanes during the past few weeks and are convinced, all hangar talk to the contrary, the new models in every instance are strikingly improved in performance, in workmanship, in simplicity of operation and in eye appeal. With apologies to Culver, who made the slogan famous during their wartime advertising, the 1946 models are definitely "worth waiting for."

Fortunately, the hopeful buyer won't have to wait much longer before his order is filled. In spite of reconversion headaches and unforeseen delays, material and parts shortages, last minute engineering changes and new financing, our manufacturers of personal airplanes are breaking the log-jams and getting into production at a remarkably fast rate. There's no doubt but that 1946 will far surpass any previous year in personal aircraft production. Remember that fact when you hear the crepe-hangers and mournful airport bench warmers start dissecting the industry or any one component part thereof.

At this writing it appears that moderate price increases will be necessary all along the line. So what? Forgetting that every other industry, including the petroleum industry, has been granted price increases, the buyer of America's postwar personal airplanes is getting more for his money than any plane buyers in the history of aviation. Now that the demonstrators are cropping up throughout the nation, that fact soon will be universally accepted.

Given a lot of new places to land, more dependable, clean and economical airport service, this year's personal plane owner has much to look forward to. ★ ★ ★

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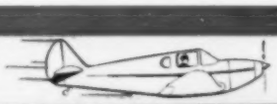

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LETTERS to the EDITOR

Flying Safety

Sirs:

After reading *Safety Before Solo*, and other articles on the safety of flight, we have learned that flying can really be safe.

Here is a case that just recently happened in Marshall. A brand new 1946 Aeronca Champion, on a flight from Shreveport, La., to Kilgore, Texas, made a safe forced landing at the Marshall airport without accident to plane or passengers. After someone checked the engine, it was found to be in tip-top shape. The cause was found to be that the cap on the gas tank had no air hole in it, and it was causing the trouble. After installing a cap with a hole in it, the engine again ran perfectly.

It is up to people in flying to see that the rules of safety are carried out.

WILLIAM (BILL) L. AECHTERNACHT
Marshall, Texas

Mechanic Wants Job

Sirs:

Since I have been in the Army these past two years and out of touch with things aeronautical, I take the liberty of writing this letter directly to you.

Upon my induction into the Army I was a flight inspector for Lockheed Aircraft at the Modification Center. Since, of course, the modification center is no more I find myself approaching discharge from the Army with the inability of returning to my old job. I am writing this in the hope that your connections will lead you to suggest a plan for me to follow.

I hold A&E license No. 17355, have approximately nine years of varied aircraft mechanical experience, am 28 years old, married with one child and a permanent resident of this area.

I would be happy to communicate with anyone that you might name or refer me to and to supply any additional information desired.

SGT. JACK B. RICE
2nd Army Box
Memphis Airport
Memphis, Tenn.

★*Those in a position to offer something to Sgt. Rice should write him directly. However, we will be glad to forward any communications.*—ED.

Identify Plane to Tower

Sirs:

Your February, 1946, issue reached me by the usual roundabout means. (I'm about ninth on the list.) I have only praise for the article by Joe James, *Two-Way Radio*.

As a tower controller, however, I would like to suggest that pilots preface their aircraft identification with the aircraft type rather than "NC," thus: "Murdock Tower this is Stinson 349."

This is not only the correct procedure, but is helpful to the controller and to other aircraft in the pattern because it enables them to determine which of several aircraft in view is the one calling.

At night it becomes a matter of safety as well. If two aircraft are in a position requiring sequencing, the faster aircraft will be given preference or will be instructed to circle. Depth perception is no good at night and our job is to keep them apart, one way or another.

A. R.
Dawson, Oklahoma

★*A. R. requested his name be withheld. This is done only when correspondents sign their names with address.*—ED.

Sirs:

I want to compliment you on SOUTHERN FLIGHT. It seems to me that it is getting better all the time from the pilot's standpoint with more information about airplanes and their characteristics, handling on ground and in the air and other good articles such as *Two-Way Radio* by Joe James in the February issue.

I would like to call your attention to page 33 where is stated that the CAA Range Station gives weather report at 29 minutes after the hour. I think it would be well to call attention of all pilots to the fact that this was changed in December and that weather reports are given a quarter after and quarter to the hour instead of 29 minutes after, as previously.

Think it would be well to eliminate any and all programs which might do away with or discourage the use of two-way radio. There should be no special license required for two-way radio in a ship or for the operator using it. If any examination is needed, it is needed, in accord with this article, on what technique to use in calling for and giving information. We should see our Senators and Congressmen and the CAA to make sure the FCC changes the present procedure. This, again involves politics, as you know, and is just a protection from lobbyists of telephone and telegraph interests. But it is time we started advancing and quit holding our nation back merely to protect a private group. This is a sensitive subject to me as I have had much experience on this line of private groups receiving legislative protection.

L. GEORGE GRUPE, D. C.
San Angelo, Texas

Love Field's Facilities

Sirs:

I was very much interested in Dr. John H. Frederick's article, *Confused Cargo Facilities*, in your March issue for two reasons:

First, because I have a great respect for the opinions of Dr. Frederick, who generally knows what he is talking about. Second, because the pictures, although untitled, were unmistakably taken at Love Field and some of the subject matter pertained to the same airport.

While we agree whole-heartedly with some of the things mentioned by the good Professor, we also take exception to some of his remarks and we would like to clarify those, through the columns of your increasingly popular magazine.

The incident of the three airline flags is partly true. The poles were erected by the airlines and used only spasmodically, but there was no agreement of any kind between the three airline station managers and this airport manager regarding how and when the flags would be flown. The poles were taken down about six months ago.

We will admit that the congestion of ramp equipment, at the present time, does present a sorry picture. However, Dr. Frederick did not

DUFFY —by Joe James

DECIDING it's high time he learned to fly, Duffy strides confidently into the lounge at Upsnoot airport. As he waits timidly for someone to sign him up, his gaze takes in the room. The fellow on the sofa is H. P. Hotrock, who had a heavy date last night, is scheduled for a late instruction, and can't be bothered. Mortimer Limberg, with the log book, has just finished his sixteenth hour of solo and is in another world. And the guy with his arms in the air is explaining how his "buzz job" caused a farmer and his team of mules to go different ways. But Rasmussin Legree, super-duper flight instructor (with coke bottle), has spotted Duffy. Since Legree is two payments behind on his alimony, Duffy will be in the air by next issue.

The Birdmen's Perch

By *Major Al Williams*, ALIAS, "TATTERED WING TIPS,"
Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.

We've been reading ads about a gyro *that makes landings!*

Yessir, this nefarious instrument flies the beam...makes a standard instrument approach . . . procedure turns . . . puts your plane on the runway—*automatically!*

Think what this infernal gadget will do to the Hangar Fliers, the Perch Pilots, the Apron Angels! No more: ". . . *but with superhuman skill, I . . .*" and ". . . *a sixth sense told me . . .*" and ". . . *flat on my back at only 25,000 feet . . .*"

Pretty soon, all the glorious stories that are told (and invented!) about flying in soupy weather will conclude: ". . . so I pushed the 'Landing' button—and landed!" We'll be switchboard operators! We'll be dial diddlers! We'll be bums!

Who cares if it's Spring!

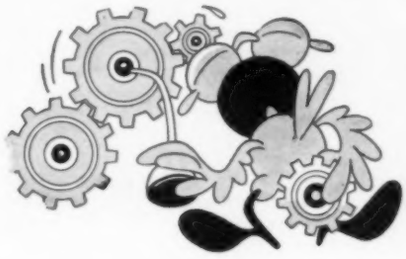
MERRY-GO-ROUND

Every time you pick up a paper, or read this magazine, you read about improved aircraft engines.

And, every time an engine is improved, chances are that proper lubrication has been made more difficult and more critical.

Reduction gears slowed down prop tip speeds, sure! But they also introduced terrific gear-tooth pressures—which must be borne by a film of oil. The supercharger was a great improvement for pilots—but one of the knottiest problems ever handed out to lubrication men. Controllable pitch props, higher compression ratios, and a dozen other engine improvements, have all contributed special problems to aviation engine lubrication.

We reminded you of these problems to



remind you how important the Alchlor Process—Gulfpride Oil's *extra* refining step—is to *you*. For by extracting *extra* of the sludge-forming and carbon-making hydrocarbons from Gulfpride Oil, the Alchlor Process gives your lubrication system *extra* of the tougher, harder-working oil molecules.

Or an *extra* margin of safety in the proper lubrication of the most critical parts of your engine!

LITTLE KNOWN FACTS DEPT.

Pfc. James H. Dilonardo, MAAF, Marfa, Tex., is something of an aviation historian. He's also a commissioned Perch Pilot (bottom rung) for the following "Facts":

"Four-bladed props were used by the English back in World War I . . . while 'chin guns' were installed on the GA-2 in the early 20's!"

Here's Perch Pilot (br) Dilonardo's 2nd "Fact" (which means he has only 3 more to go for promotion to Senior Perch Pilot):

"The first B-17 was a helicopter designed by a French engineer in 1915!"

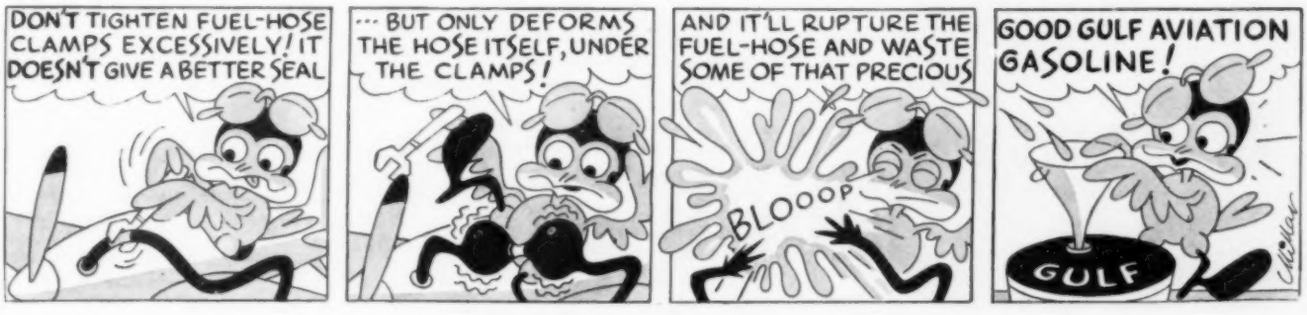
And Charles R. Foltz, Kansas City 3, Mo., is commissioned for:

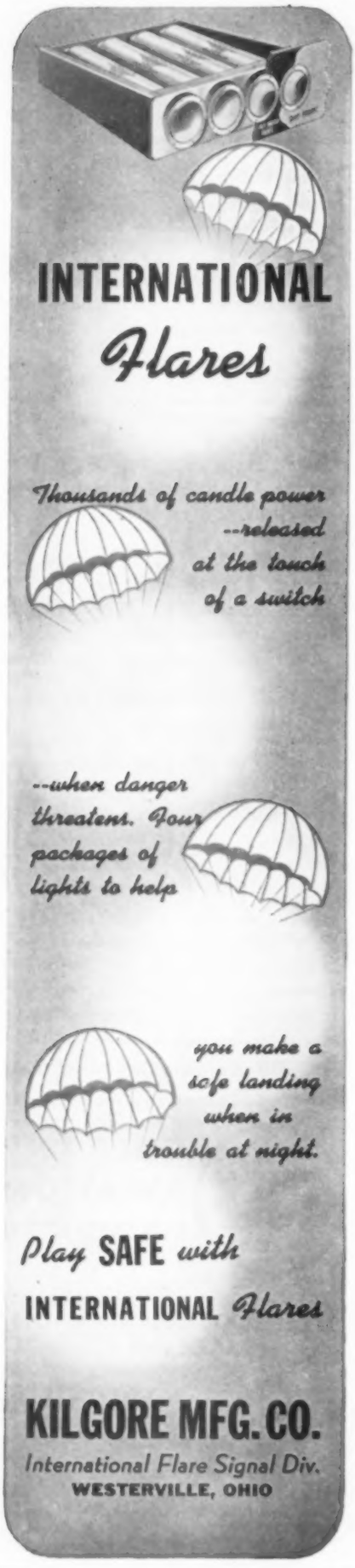
"If dropped a foot apart, the rivets from our biggest flying boat would stretch out in a line about 260 miles long!"

That's all there is to it . . . Send "Fact" and proof to us at the address on the top of the page, and, suddenly, fame may be yours! Not to mention a Commission of Perch Pilot (br)!

Gulf Oil Corporation and Gulf Refining Company...makers of

GULF **GULF AVIATION PRODUCTS**


DON'T TIGHTEN FUEL-HOSE CLAMPS EXCESSIVELY! IT DOESN'T GIVE A BETTER SEAL
--- BUT ONLY DEFORMS THE HOSE ITSELF, UNDER THE CLAMPS!
AND IT'LL RUPTURE THE FUEL-HOSE AND WASTE SOME OF THAT PRECIOUS
BLOOOP
GOOD GULF AVIATION GASOLINE!
GULF



mention that the area for the orderly arrangement of this equipment was under reconstruction and, of necessity, it was parked where we know it should not be, temporarily.

We believe, as does Dr. Frederick, that the passengers do not care whose steps they use when they arrive at an airport. But there is not an excess of ramp equipment at Love Field, regardless of whose name is painted thereon. We have had as many as fourteen schedules at one time in front of the terminal building and didn't have steps enough to go around. Frequently, steps of one airline are used to unload passengers of a rival carrier. Seventy-three daily airline schedules require considerable ramp equipment, as even the Professor must admit. It is quite possible that Dr. Frederick's eyes have become too accustomed to the airline traffic volume at the Austin Airport and his vision of the necessary ramp equipment at a busy airport is somewhat dimmed. We think the solution for the elimination of such ramp congestion is not in airport-owned or one-company-owned steps. In our opinion, the solution lies on the drawing board of the aircraft designer. Why not an airplane with its own steps or ramp, built-in and retractable?

We disagree with the suggestion about announcements over the loudspeaker. Such a process is fine in principle, but too slow in practice. We agree that announcements regarding arrivals and departures are too lengthy and have too much commercial ballyhoo, but that is current airline policy.

We agree about the porter situation. That was corrected at Love Field in 1940 when we moved into the present terminal building and the arrangement has worked very satisfactorily. The porters are employed by the airport and the airlines are billed for service on a prorated schedule basis.

While we are wound up, we would like to add one more thought. The relief of congestion in airline terminal buildings can only be accomplished by separating the ticket offices from the waiting room.

Finally, we are going to believe that Dr. Frederick did not mean to infer, in his article, that the whole operation at Love Field was Snafu, and that the label of airport inefficiency applied to anything other than confusion of ramp equipment. Yours for more articles by Dr. Frederick,

CHARLES E. HANST
Airport Manager
Love Field

Dallas, Texas

In Defense of PT's

Sirs:

I have been a reader of your magazine for a number of years and have most of the time found it to be very interesting. However, the article *Trainers in Mufti* by A. H. Knouff in the March, 1946, issue is the most misrepresented article I have ever read. Does the writer really know anything about airplanes? If so, why didn't he go into more detail and explain a few things such as:

How does he arrive at the figure that it costs $6 an hour to operate a Fairchild PT-19 or similar PT trainer? The way I figure it, it will cost not over $4 an hour at the most if you leave your hangar rent and depreciation out of it. A small plane would cost $3 an hour figured my way.

Also could Mr. Knouff rent an airplane, say a Cessna or Fairchild 24, suitable for taking his wife and children for less than $17 to $25 an hour? If he had said his wife and one child, then I'll agree that he can poke along in a Cub Cruiser for say $8 to $10 an hour rental time.

Furthermore, has this Mr. Knouff ever flown a PT-19 with a Rawdon or any other type cockpit enclosure installed? If he had, I do not see how he could write such an article referring to acrobatic flying as their only use. Here in Tulsa we can rent a PT-19 for $10 an hour as compared to $6 and $8 for a small ship. We cruise in a PT-19 at 105 to 115 mph. as compared to 65 to 85 mph. in the smaller ship. . . . I also disagree with Mr. Knouff when he states that you should buy two ships so you will have one to use for parts to eliminate long delays. I recently ordered a flap for a PT-19 and it arrived just four days after I sent the wire for it. I ordered a landing gear V for a Taylorcraft and it took three weeks for it to arrive. The airplane sales sheets are full of PT parts listed for sale and their prices are about half of the cost of those for the smaller ships.

In conclusion he states that he advised so many newcomers to buy a good used light plane for $800. If he can tell me where I can buy a good lightplane for $800 I'll give him an additional $200 bonus for his advice. I have yet to find a *good* lightplane that will sell for less than just double his figure, or $1,600.

GEO. E. GOODHEAD, JR.
Tul-Aero Aircraft Service

Tulsa, Okla.

★*Knouff's $6 hourly cost is high and open to debate. A check of several operators reveals lack of accurate cost accounting on PT operations, although one operator we queried showed actual figures for a PT-19 flown 94 hours during a four-month period. His costs came to $4.91 per hour, excluding depreciation and storage. The actual figures were $175 for fuel and oil, $257 for maintenance and charges against overhaul (admittedly excessive), and $30 for insurance. To obtain information of value to its readers,* SOUTHERN FLIGHT *hereby invites PT owners to send in for publication actual and accurate figures on PT costs, together with a breakdown showing methods used for calculation.*—ED.

Ratings Based on Wing Loading

Sirs:

The February issue of SOUTHERN FLIGHT contained two articles on the present safety problem your editorial *Nemesis for Progress* and Bill Green's *Safety at Point of Sale*. They probably will provide many people with food for thought.

Personally, I think there is a lot of unnecessary excitement about the increased accident rate in private flying. There are more airplanes and more pilots than there ever were before, so there are more accidents. People have been killing themselves in automobiles every day for the past thirty years despite the fact that highway departments have spent hundreds of millions of dollars of the taxpayer's money building "super highways," one-way highways, four-lane highways, painting stripes down the middle, signs along the side, red lights, green lights, flashing lights and various Rube Goldberg creations.

It all boils down to the cold fact that when you give the average person something that will move him faster than a trot, he will devise a way to promote himself a funeral. If the states have been unable to prevent fatal automobile accidents then they can be expected to make a pretty sorry attempt at preventing airplane accidents.

I like the way Bill Green puts it in his *Safety at Point of Sale*, third paragraph: "Judging by the way people are killed in automobiles, we can expect a lot of them to be killed in airplanes." In his fifth paragraph he pretty well sums up the situation, especially with items (4), (5), (6), (7) and (8). We all know people who regularly run out of gasoline in the automobiles with a

(Continued on page 76)

★ SECTIONAL VIEW OF THE 52 PASSENGER DC-6 AIRLINER

OFF TO A *Flying Start*

in a dependable Douglas DC-6...the luxury airliner based on millions of flying hours transporting 80% of our airborne men, munitions and wounded, plus Douglas' years of prior experience building 80% of all air transports.

GREATEST NAME IN AVIATION

DOUGLAS DC-6

Sister Ship of the Famous C-54 Combat Air Transport

Logging the Coast

By.. Midge Winters

THE last time Diesel engines made news was when the station wagon crowd made a dash for them because of the wartime gasoline shortage. Remember? But today the Diesel again finds itself in the spotlight—this time in a 10-A Stinson. Fred A. Thaheld, of Los Angeles, has produced a 235-pound, 4-cylinder, opposed, air-cooled aviation Diesel engine, which was tested recently in his Stinson. Thaheld subsequently claimed his engine:

1. Slashes flying fuel cost to one-quarter of one cent per mile. Thaheld says, "a three-place airplane with a 100-125-hp. Diesel engine will fly for an hour on three gallons of Diesel fuel, the lowest cost fuel produced by the oil industry, at a total cost of not to exceed 30c if Diesel fuel is priced at 10c per gallon." Actually, the Diesel fuel Thaheld used in his public flight demonstration was the same common variety that is sold at retail to Los Angeles Diesel truck drivers by service stations at about 8½c per gallon.

2. Requires no additional instruments on the panel, and such engine accessories as the carburetor and its heater, the magneto, coil, distributor, spark plugs, ignition switch and complicated ignition wiring are discarded and no longer the source of frequent adjustment and maintenance. The Diesel engine, known as the Thaheld-Shaffer, has but two accessories—the Bosch fuel injection pump and Breeze combustion starter.

3. Starts instantly, eliminates the old warm-up.

4. Shortens the take-off and rapidity of climb. Thaheld explains that most people erroneously believe the Diesel engine is sluggish, and he assures us that rapid Diesel acceleration shortens the take-off and increases the rate of climb. He predicts that his Diesel engine will add as much as 40 per cent to the ceiling already calculated for a gasoline powered plane by pointing out that, as you climb to higher altitudes with gasoline power, the rpm.'s of the engine drop, indicating a considerable loss of power. As you climb with a Diesel, the propeller speed increases.

The way Thaheld explains this, even I can understand it. At cruising speeds, he says, the Diesel engine will consume approximately 30 parts of air to one part of Diesel fuel, whereas the gasoline engine in comparable flights will use approximately 15 parts of air to one part of gasoline. Although both of them receive less and less air during each intake stroke with increasing altitude, the Diesel engine's ceiling is higher than that of a gasoline engine. This engine might go over great in Denver whose airports are already a mile above sea level, and in other mountainous areas.

5. Eliminates fire hazards. Diesel fuel will not even flash when poured on a hot engine. Also, the sudden icing of carburetors is completely eliminated, says Thaheld. Like Marine users of Diesel power, aviation users should subsequently enjoy lower insurance rates.

6. Eliminates radio interference. With no electrical ignition system, the Diesel power plant does away with radio interference resulting from same.

More Non-Scheduled Airlines

New West Coast airline—Los Angeles' sixth—now flies daily passenger schedules between LA and Sacramento, the state capital. Governor Warren was among the first passengers of the airline, operated entirely by former NATS pilots. Stewardesses are ex-WAVES. . . . Bird Airways, non-scheduled charter operator, is now headquartered in the Long Beach terminal and plans service coast-wise to Alaska and Mexico. The cargo company was founded by its president, Forrest M. Bird, 24-year-old ex-ATC pilot, on the East Coast. . . . National Skyways Freight, cargo line operated by the ex-Flying Tigers who have attracted publicity like honey draws flies, has moved its headquarters to Los Angeles Airport. . . . Other cargo lines operating from Los Angeles Airport to the East are the Los Angeles Air Service, National Air Cargo, and Facific Air Cargo. . . . A new one which will operate off Grand Central airport will soon make its appearance under the name of Viking Air Transport, operated by former Navy pilots.

Fred Thaheld and his Diesel-powered Voyager

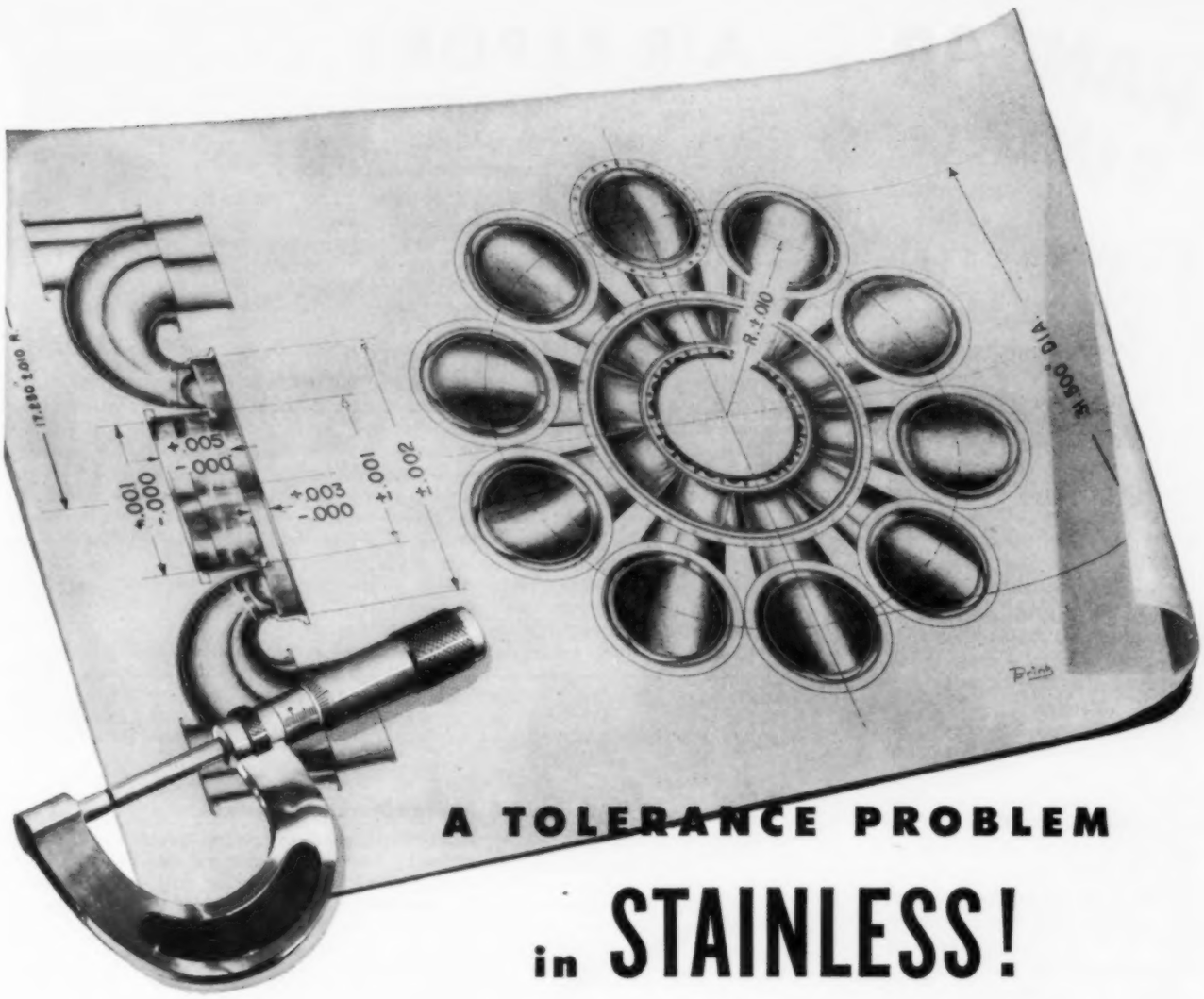
Getting Personal

Ginny Zimmer, former assistant publicity director of WAL, had no sooner resigned to join the offices of yours truly than her boss, once removed, followed suit. Yes, after ten long years with WAL, Tom Wolfe, vice president of traffic, advertising and publicity, gave up all three jobs to "look around." He will also finish writing a book—yes, you guessed—on airline traffic. . . . Ray Grant WAL's cargo traffic head, has also resigned—to go with Lockheed. . . . Bud Lily, one of Earnie Foster's right hand men in Lockheed's news bureau, has resigned to join "Look" magazine. . . . But getting back to this book writing business, Mr. and Mrs. Jack Hereford (Peggy Guetter) have just completed an opus centered on the history of WAL. A condensation of it has just been released to the aviation press in advance of the historic airline's twentieth anniversary this month (April 17). . . . Congratulations are in order for Boeing's Wellwood E. Beall, vp of engineering and sales, Quality Manager Charles S. Rankin, and Roger P. Holman, assistant to the president. Rankin received his twenty-year pin, Beall and Holman, their fifteen-year pins. That's tenacity.

Vox Parks

Eleanor "Jonnie" Rudnick, young pilot, has purchased 120 acres of land one mile south of Bakersfield where she will expand and operate the city's first airpark. Jonnie readily admits that she has gone into a man's field and asks no quarter. Good luck. . . . George McCuyer, formerly of Compton Airport, has opened a new airport at Bellflower, Calif. . . . And something new in chains is the proposal of a chain of twenty-three airports from Seattle to Dallas within about two hours flying of each other. Under the title of Airports, Inc., an application has been made for an airport in this chain at San Fernando by President S. M. Roycraft.

Marv Whiteman is the only man to date who has established an airpark in about the last decade! Yep, that's us—aviation center of the West—yak, yak, yak. But it isn't the hard-working county's fault, as this column has so often pointed out—somebody has to convince the public that aviation is here to stay. ★ ★ ★



A TOLERANCE PROBLEM in STAINLESS!

JET ENGINES ARE HARD TO MAKE

Specifications called for this stainless sheet metal elbow assembly. Notice the indicated tolerances! A tough job in any sheet metal—a terrific undertaking in stainless steel!

BUT SOLAR TACKLES ANY STAINLESS JOB

Utilizing the exclusive SOL-A-DIE process of forming and Solar's own specially developed welding, fitting and processing techniques, Solar's engineers and craftsmen maintained these exacting tolerances under successive production contracts.

SO IF YOU HAVE A TOUGH PROBLEM . . .

which involves combating corrosion or heat—consider stainless steel. Put it up to SOLAR engineering and production skill. Our nearest office is ready *right now* to help you tailor stainless steel to your special needs.

SOLAR
AIRCRAFT COMPANY

SAN DIEGO 12, CALIFORNIA : DES MOINES 6, IOWA : 60 E. 42ND STREET, NEW YORK 17, N. Y.

HANGAR FLYING

LOCKHEED

PILOT-BOOSTER

Few people know that at one curious stage in the development of the *Constellation*, the plane's hydraulic booster system worked *too* well.

The plane was designed so that the boosters, instead of the pilot, would do most of the work moving the control surfaces. For every pound of push the pilot puts on the rudder pedals, for instance, the booster now exerts 23 pounds of pressure to move the rudder. Saves the pilot a lot of wrestling. And assures really full control of big, modern four-engine airliners.

Well anyway, early in the game Lockheed perfected the booster system to such a point that you could practically fly the *Constellation* with your little finger. This reaction, of course, was too sensitive for general use... but the point is that the all-important "feel" of the ship has been tailor-made to the exacting wishes of experienced pilots, who swear by it.

Now, to passengers and pilots, the *Constellation* acts like the thoroughbred she is. Her foolproof booster system (the only one with a C. A. A. approved type certificate) makes the 45-ton, four-engine plane handle as lightly as a twin motor job.

Like everything else on this ship, the boosters were developed by imaginative, painstaking engineering... the kind that keeps Lockheed leading the field.

L to L for L

© 1946, Lockheed Aircraft Corp., Burbank, Calif.

AIR REPORT

☆ SIGNIFICANT TRENDS IN THE NEWS

Lightplane Improvements

With monthly production past the 1,800 mark (see page 66 for survey of factory figures), some lightplane manufacturers are beginning to incorporate significant improvements in their 1946 versions of prewar models. Among improvements is Piper's use of metal spars in the popular Cub trainer. Globe Aircraft is installing a new steerable tail wheel on the Swift, and has also modified the Swift's canopy by installing a hinge in the center, permitting each side of the hatch to be raised for entrance. Locks will be furnished.

★ ★ ★

Slower Planes, More Airports

John H. Geisse, Assistant to the CAA Administrator for Personal Flying Development, reports slow flight innovations in lightplanes which will have a profound effect on the number and accessibility of personal airports are already well under way. "It has been my pleasure to fly one airplane being developed for the market which could land and take off with a ground run of about 125 feet and which still retained a very satisfactory cruising speed," he told the spring meeting of the American Society of Mechanical Engineers in Chattanooga on April 1. "The CAA is also fostering the development of undercarriages which will make landing cross-wind as simple and as safe as landing into the wind. If this development proves successful all-way fields will not be required. Such developments may well make roof-top landings for the personal airplane a distinct possibility, with all that that would mean in increasing its utility." Geisse said several roadable airplane types are under development, commenting that they will not be as good airplanes as can be built and will not be good automobiles, but they will have "a utility materially exceeding that of the non-roadable airplane." He expects the helicopter and the airplane eventually to be one and the same vehicle.

★ ★ ★

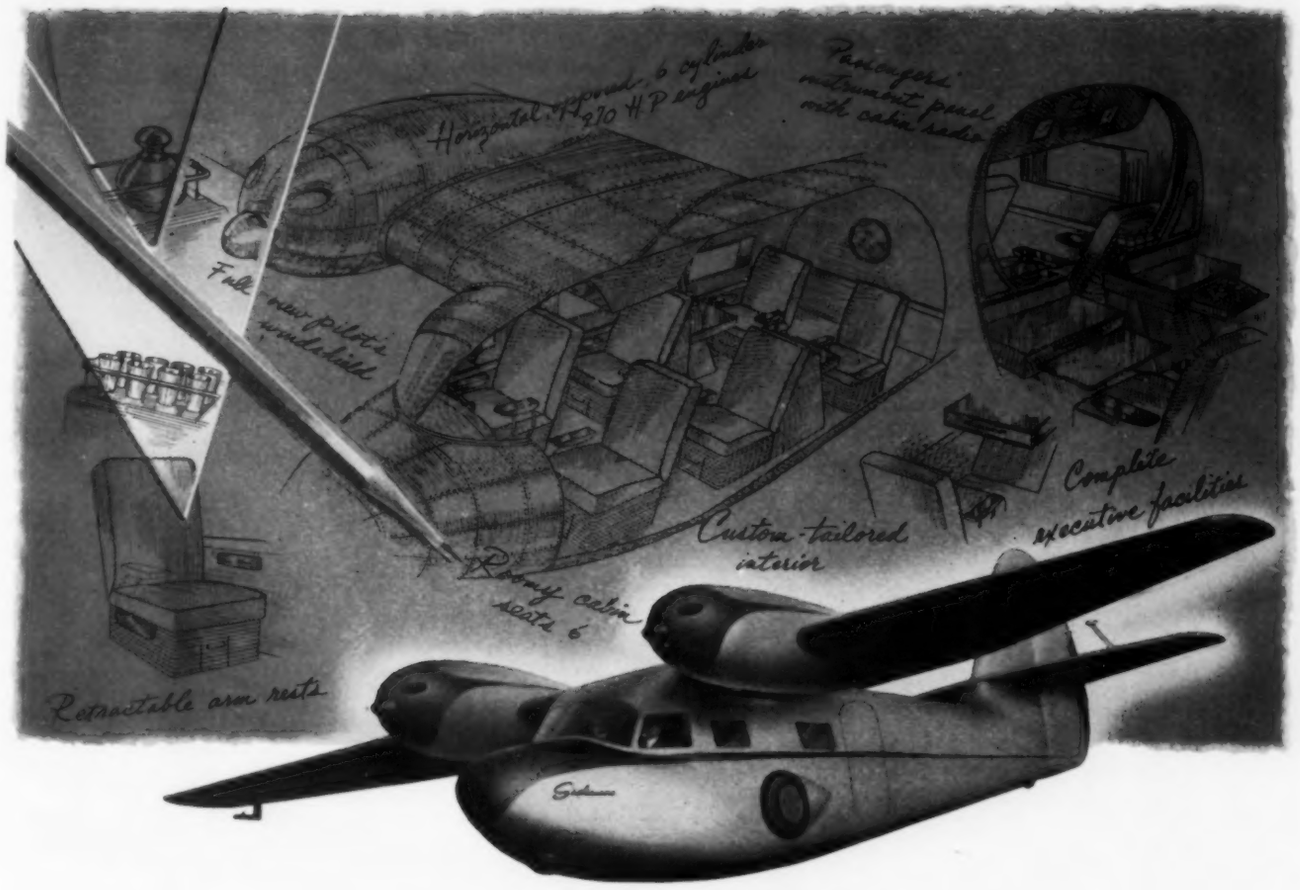
CAA Specialists Urge More Improvements

Significant changes in CAA requirements and suggested promotional activities for the furtherance of private flying have been recommended by the CAA's regional private flying specialists. Gathered in Washington with Administrator T. P. Wright, the regional officials recommended: Requirement of only five of the necessary ten hours of dual instruction for a private pilot's license be given by a rated instructor, not less than four of them after solo (all ten hours of dual now required must be given by a rated instructor, at least two of them

(Continued on page 57)

FIRST PHOTO OF 4-PLACE BEECH MODEL 35 shows how butterfly tail resulted in extreme streamlining of fuselage. New Beech is first lightplane of its category having covers for retracted wheels. Its cabin, hidden by wing here, is said to compare with that of the Spartan in comfort and roominess. All-metal Model 35, reportedly priced at about $6,500, is powered by 212-hp. Series E Continental and its top speed was recently clocked by the company at 180 mph.

—(Beech Photo.)


Horizontal, 4 pound, 6 cylinder 220 H P engines
Passengers' instrument panel with cabin heater
Full view pilot's windshield
Complete executive facilities
Custom-tailored interior
Roomy cabin seats 6
Retractable arm rests

this is the Southernaire

Every airplane is designed and built for a purpose. This is the Southernaire . . . designed and built expressly for corporation executives and their pilots who must have exceptional performance and superior flying comfort.

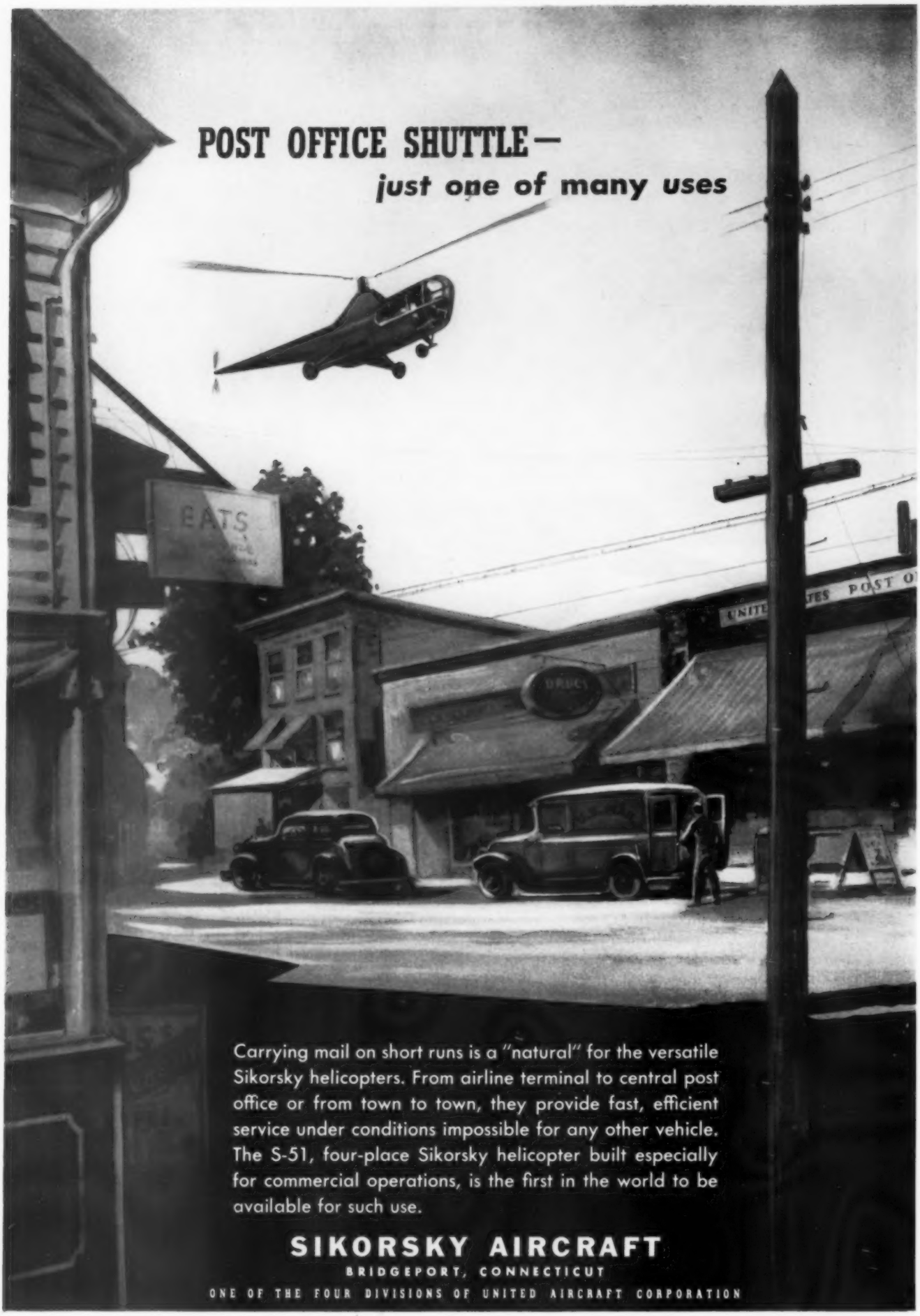
Unusually clean design and two horizontal, six cylinder opposed air-cooled engines with controllable pitch propellers give the Southernaire a top speed of 202.5 MPH at sea level, cruising speed of 175.5 MPH, and a range of 760 miles, with adequate fuel reserve.

Inherent stability and instant response to the lightest control pressures make long cross-country flights easy. Positive ground control is assured by the hydraulically operated tricycle landing gear, and a landing speed of *63* MPH at a 40 degree flap setting opens small airports and strips to the Southernaire.

The cockpit is complete, with a full complement of engine and flight instruments, two-way crystal controlled radio, and adjustable pilot seats that are actually *comfortable*. The Southernaire way is today's way. Write Southern for complete details.

SOUTHERN AIRCRAFT DIVISION
PORTABLE PRODUCTS CORPORATION

PLANT IN GARLAND, DALLAS COUNTY, TEXAS



POST OFFICE SHUTTLE—
just one of many uses

Carrying mail on short runs is a "natural" for the versatile Sikorsky helicopters. From airline terminal to central post office or from town to town, they provide fast, efficient service under conditions impossible for any other vehicle. The S-51, four-place Sikorsky helicopter built especially for commercial operations, is the first in the world to be available for such use.

SIKORSKY AIRCRAFT

BRIDGEPORT, CONNECTICUT

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

Highest CAA-designated airport in the U. S. is at Creede, Colorado . . . elevation 8700 feet. The Stinson Voyager 150 has repeatedly taken off into the thin air at Creede with a full load . . . and always with a take-off run of 1350 feet or less! And at sea level its take-off run is a short 550 feet!

The extra power that makes the Voyager 150 a versatile performer at high altitudes will whisk you out of a cow pasture or off a golf fairway . . . with the same ease as you'd take off from the best airport in the land!

This plane thrives on thin air and cow pastures!

Manufactured under Civil Aeronautics Administration Type Certificate No. 767

The Stinson Voyager 150 has "git-up-and-go" to spare!

And abundant power to take you where you want to go isn't all that you'll like about this new personal plane by Stinson.

You'll like the luxury and comfort of the Voyager 150's soundproofed and ventilated cabin . . . its richly upholstered, adjustable seats, with room for 3 passengers and pilot.

You'll like the Voyager 150's maneuverability and ease of handling. With this plane you can use fields that aren't practical even for smaller planes if they lack the Voyager 150's complete controllability.

A 500-mile trip in the Voyager 150 is only an afternoon's jaunt . . . and without refueling. It cruises at 125 m.p.h., has a maximum speed of 133 m.p.h. And operating costs compare favorably with the cost of running your car.

The Voyager 150, like all Stinson planes ever built, has an inherent stability that spells safety in flight. Wing slots are built in to make the Voyager 150 stall- and spin-resistant. And there are wing flaps to slow down landing speed. It is manufactured under Civil Aeronautics Administration Type Certificate No. 767.

Let your local Stinson Dealer tell you more about this new plane by Stinson, the company that has built quality personal planes for more than 20 years. Ask him for a free illustrated brochure, or write Stinson Division, Consolidated Vultee Aircraft Corporation, Wayne, Michigan.

Stinson ... EASY TO BUY ... EASY TO FLY

Stinson Division, Consolidated Vultee Aircraft Corporation, Wayne, Michigan

*Magic Touches in "The Modern Magic Carpet"**

STABILITY . . . CONTROL . . . SIMPLICITY

Stability of the Bell Helicopter

Pipe Line Inspection

HELICOPTERS have many unusual features. They take off and land vertically . . . fly forward, backward or sideways . . . hover in mid-air . . . do many practical jobs no other form of transportation can touch. All of these achievements are unique, but there is something *especially* different about the Bell Helicopter—it has a new kind of built-in stability—*one of the most important developments in helicopter design.*

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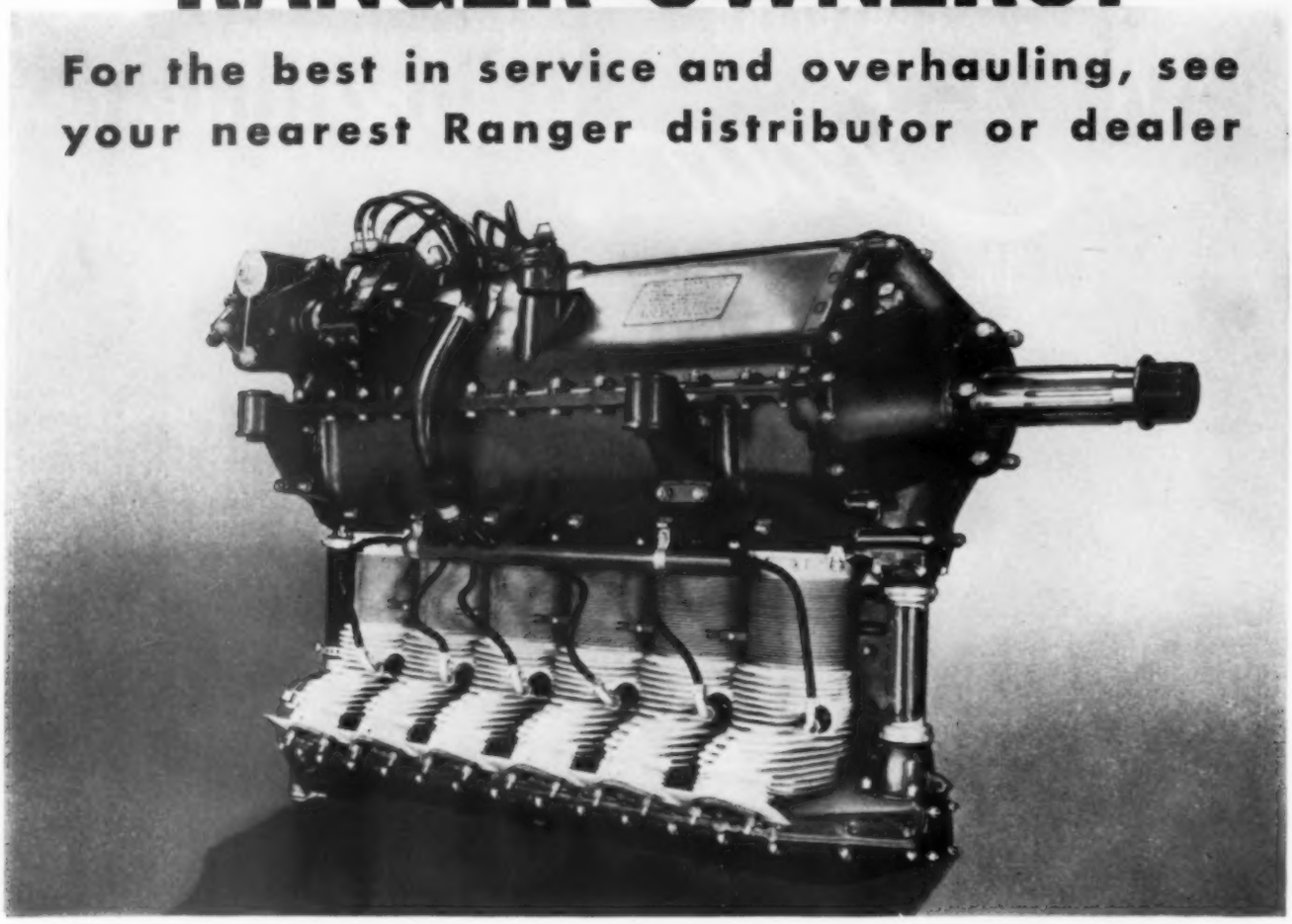

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by Wolfgang Langewiesche

Test Pilot for Kollsman Instrument Company, formerly Test Pilot for Cessna Aircraft Co.

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8. That Thing Called Torque.
9. The Flippers and the Throttle.
10. The Ailerons.
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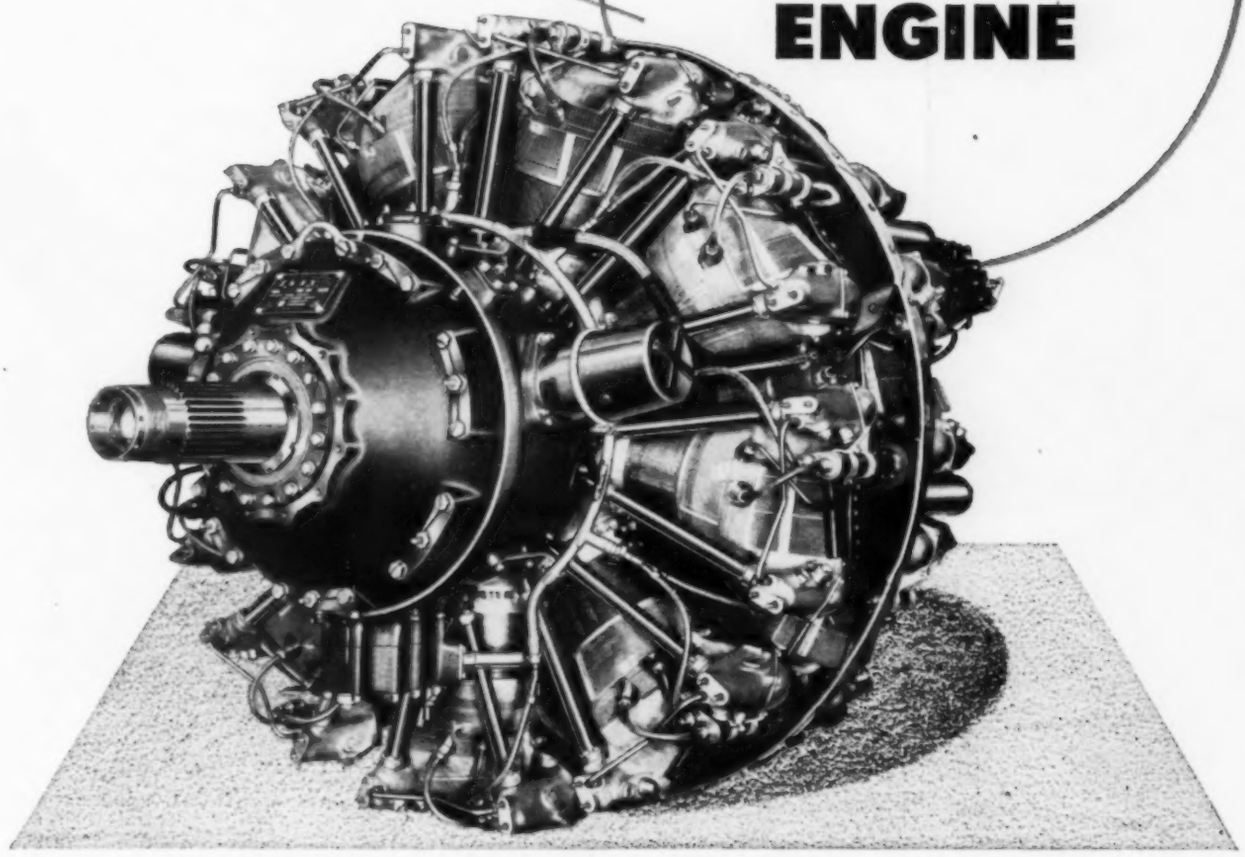

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North American's Midget Mustang

WITH a $6,100, 4-place, 150-mph. low-wing tricycle as its opening bid for the family plane market, North American Aviation, Inc., has formally entered the lightplane field, the second combat aircraft maker to do so. But observers are noting a lot of difference in the debut of the West Coast firm made famous by AT-6's, P-51's and B-25's and that of Republic Aviation Corporation. Whereas the Thunderbolt's manufacturer came out with a small amphibian of radical design and a pledge not only to sustain an incredibly-low selling price but to lower it eventually, J. H. (Dutch) Kindelberger has uttered hardly a phrase over his little Navion, which has all the appearances of an airplane capable of earning as much fame in private flying as was won in war by its renowned big brother, the Mustang. About all the North American executive put out was a business-like comment which goes like this: "Announcement of North American Aviation's plans to enter the personal airplane field came after extensive research and experimentation and tooling to develop a high standard practical

model which would make ownership of a personal plane worthwhile."

Performance

Powered by an aircooled Continental E-185 engine which is rated at 185 hp. at 2,300 rpm. at sea level, and equipped with a variable-pitch propeller, the Navion has an estimated cruising speed (70 per cent of power at 5,000 ft.) of 150 mph., a top speed of about 160 mph., landing speed with 40-degree flaps of 54 mph., rate of climb at sea level of 830 ft. per min., a most economical cruising speed of 115 mph., at 5,000 ft. on 51 per cent of power; maximum range at 51 per cent of power at 5,000 feet of 700 miles, and a service ceiling of 15,600 ft., according to factory figures. Tests for a CAA approved type certificate are under way.

The Navion's dimensions are 33 ft. 4 9-16 in. span, 27 ft. 5 13-16 in. length and 8 ft. 9 in. height. Empty weight is 1,551 lbs., and gross amounts to 2,570 lbs. The 1,019-lb. useful load is made up as follows: Pilot 170 lbs., front passenger 170 lbs., two rear passengers 340 lbs., 10 qts. oil 19 lbs., 40 gals. gas 240 lbs., and baggage 80 lbs.

Sliding Canopy Covers Cabin

Equipped with a 12-volt electrical system and starter, the Navion is entered from the leading edge of the

Navion's resemblance to the P-51 is emphasized by empennage and wing tips. Photo on opposite page offers excellent view of empennage, wing camber and aluminum-top sliding canopy. Tricycle landing gear, step for entering over leading edge and wing tip camber are illustrated in photo below.

—(North American Aviation, Inc., Photos.)

Novel sliding canopy and roomy interior are features of Navion, which weighs 1,551 lbs. empty and 2,570 loaded. Canopy can be latched in several open positions and has a lock. Rudder pedals control steerable nosewheel but hydraulic brakes are controlled by lever extending from instrument panel.
—(North American Aviation, Inc., Photo and Drawing.)

wing on the left side. A small footrest projects down from the fuselage beneath a hand-grip near the windshield. This is the second postwar lightplane to feature leading-edge entrance; the Model V Culver was the first. Both airplanes are low-wing tricycles with flaps barring the trailing-edged steps. Experiments have shown, however, that it takes very little effort for the pilot to force the tail of the Culver down as he prepares to enter the plane, thus lowering the trailing edge enough to allow him to step over the flap for a rear-wing entry. The tail is said to remain down until the airplane is entered, when the occupant's weight forces the nose down.

A sliding canopy of formed aluminum sheet with plenty of glass for front, side and rear visibility covers the "cabin," which has no door (the Navion is a production airplane). The canopy can be latched in several open positions and is provided with a lock. The cabin width inside is 43 inches, and the rear seat has two inner spring cushions covered with foam rubber. The back of the rear seat may be removed to accommodate 435 lbs. of luggage in 46 cubic feet of space. The luggage compartment is covered when the canopy is closed, providing a convenient shelf for hats and parcels.

Dual wheel controls extend through the instrument panel which mounts a non-sensitive altimeter, airspeed indicator, tachometer, oil pressure indicator, magnetic compass, electric fuel level gauge, ammeter, oil temperature indicator and fuel pressure indicator. A flap and a landing gear selector control extend through the control panel also. An engine-driven pump and emergency hand pump supply pressure for landing gear and flaps, and flaps may be hydraulically locked in intermediate positions. A mechanical lock is used to lock them in "up" position.

A green position indicator is installed on the control panel for each of the three landing gear components. Each light illuminates when its respective gear is down and locked. A landing gear warning horn also is provided, sounding when throttle is retarded to landing position and the gear is not locked for landing. A red light illuminates when any gear is in any position other than down and locked or up and locked.

A single hand lever extending from the instrument panel controls the Navion's brake master cylinder, and both hydraulic brakes operate simultaneously. The brake hand lever incorporates a ratchet for parking. The nose wheel is 20 degrees steerable to right and left with the rudder pedals, and retract rearward, with a portion of the wheel extended from the well when retracted.

Special Wing Design

Outstanding about the Navion is its unique wing, for which North American engineers, who made the first successful application of the NACA laminar flow theory in a production airplane, claim unusual aileron control. The specially-designed wing's tip airfoil is inclined three degrees nose-down relative to the root airfoil. Therefore, the company points out, the root sections are first to stall as the angle of attack of the wing is increased to the stall, and there is no tendency for the airplane to roll. Good aileron control up to and through the stall is claimed. The tip airfoil section is also provided with a large amount of up-in-the-middle curvature (camber), which further reduces any tendency for the tip sections to stall first. NAA engineers explain it this way: "In comparing the flow over the tip airfoil of the Navion with a conventional airfoil at large angles of attack approaching the stall, it is seen that the camber on the Navion airfoil is lined up with the approaching streamlines and any curvature from the initial streamline is quite gradual. The conventional airfoil on the other hand 'bends' the flow too abruptly a slight distance behind the leading edge, and a sudden loss of lift is precipitated. This is normally curved by the use of expensive leading edge slots near the wing tip."

The Navion's all-metal, semi-monocoque fuselage structure is manufactured as a single unit. Main structural members are two upper and lower longerons which extend aft from the steel sheet firewall. Its semi-monocoque, all-metal tail group has full cantilever horizontal and vertical stabilizers, and elevator and horizontal stabilizer assemblies are interchangeable, left and right. The rudder has a trim tab, adjustable on the ground. A removable dorsal fin fairs into the vertical stabilizer.

Structurally a part of the fuselage, the full-cantilever engine mount of formed aluminum sheet is removable from the fuselage at the firewall and the nose gear mounting beams. Shear type fittings are provided for mounting the engine at four points.

$6,100 Price; June Delivery

A sales policy for the Navion has not been completed by North American, but the company has fixed its price at $6,100, fly away Los Angeles

(Continued on page 42)

GI Flight Training:

Billion-Dollar Boost for Civil Aviation

While those in charge belatedly formulate plans, demand for instruction poses tremendous prospects for new jobs, planes, airports. Here are suggestions to help schools qualify.

By JAMES W. BATCHELOR and RICHARD H. LANDRUM
United Pilots and Mechanics Association

THE hottest subject in Washington today is what the government is doing for the veteran. Veterans' loans for business, housing, vocational education and rehabilitation, aids for the wounded and helpless—every phase of assistance is being avidly explored and augmented in an effort to show the nation's appreciation for the sacrifice and service these valiant men have rendered.

In no phase of veterans' assistance has the program moved so swiftly as in the aviation field. Practically every one of thirteen million veterans will be eligible for educational training. And since this is the "air age" they are swamping flight schools with applications to learn to fly.

The full impact of the veterans on the future of aviation in this country has not been realized by many of the leaders in the industry. Crystal-gazers have come forth with predictions of 100,000 airplanes in 1950 and 300,000 to 500,000 pilots; but they had not stopped to realize that the GI bill which permits flight training at government expense will knock these predictions cockeyed before twelve months have passed.

The December 28, 1945, amendment to the GI bill caught practically everybody "asleep at the switch." The Veterans Administration had no trained aviation personnel competent to approve the "fairness and reasonableness of charges" as required by the bill. The boards of education of the forty-eight states were likewise without such personnel. And the CAA, which is charged by law with the "promotion and development of aviation," had made little headway in working out a liaison agreement with the Veterans Administration sixty days after the bill was passed.

The first widespread information made available to the public went to members of United Pilots & Mechanics Association in its February 9 newsletter. Hundreds of schools seeking to qualify deluged the association with requests for information. Then the association sent the information to every designated airport in the nation.

Approval of aviation courses and facilities is in the hands of the Board of Education of each state. The state standards vary widely according to the view of each particular board. Some states require a CAA approved school before they will certify the flight school as being competent to give GI flight training. Other states do not require CAA approval.

Some states require minimum runways of 3,500 feet; some require paved runways; others approve sod runways of 1,500 feet or longer for elementary flight schools where a fully loaded aircraft can take off in half the length of the runway and clear any obstacle of 50 feet.

How to Qualify

In some states indoor toilets, indirectly heated shops, hangars for all airplanes and many other conveniences are required. In others only the bare essentials for doing a good job of teaching the veteran to fly are required.

For the flight school that seeks to quality for giving GI flight training the procedure is simple:

First: Consult your state board of education and get a list of state requirements.

Second: Meet those requirements.

Third: File a request with the state board of education for approval of your school and courses.

Fourth: Submit to the Regional Office of the Veterans Administration a list of courses offered, the number of hours in each course, including dual and solo flight time and the charges proposed for each course. The reasonableness of the charges must be approved by the VA before the operator can collect from the government.

When state approval of facilities and courses and VA approval of costs have been obtained the flight school is ready to enroll veterans for training.

The courses being offered depend upon the facilities of the school. Many small schools have qualified for private pilot courses only since this course requires the smallest investment and the minimum amount of equipment. These schools hope to expand into larger operations as their business increases. Other schools offer commercial courses and instructor and instrument ratings. Such courses require much greater investment and higher instructional skill.

The cost of the courses varies with the location of the school and the types of aircraft and equipment used. In low-cost areas the charges are less than around the large cities where rents, living costs and other charges are high. Costs for the private pilot course vary from $8 per hour to $10 per hour for solo and $10 to $12 per hour for dual flight instruction. Most operators are using 65-hp. equipment for the private and commercial courses. If this is done a commercial license with an instrument or instructor rating can be given for less than $2,000.

New Manual 50 Coming

Inasmuch as everyone looked to the CAA for leadership and guidance in setting up these schools, it was swamped with requests for information on how it should be done. Manual 50 which had heretofore been the guide book in establishing flight schools was found to be impractical and inadequate for getting this tremendous flight training program under way. The Manual

(Continued on page 38)

Low Cost, Better Quality

Lightplane Instruments

Adolph Urfer, who introduced inexpensive lightplane instruments fourteen years ago, tells the private flier what to expect on the new plane panel.

By ESTHER H. FORBES

IF you're in the market for one of the new Cubs, Ercoupes or other lightplanes now coming off the production lines, you've probably been wondering what kind of instruments you'll be able to get. How good will they be? What will they cost?

Adolf Urfer, president of the Aeromarine Instrument Company, New York City, has been doing a lot of figuring along the same lines. Here are his answers. In the first place, the instruments will be of the same general types as before the war. They'll be sold at the same prices. But they'll be better.

What Urfer has to say should be of particular interest to private fliers, for it is he who first introduced inexpensive flight instruments for small planes fourteen years ago. Formerly all aircraft instruments had been complex affairs, designed to give commercial and military pilots the high precision they required. Therefore, they had been extremely expensive. Just the minimum instruments for contact flying cost some $120.

Design for Pocketbook

Urfer was convinced that the average lightplane pilot did not need the precision these instruments gave—what he did need was a drastic reduction in prices. The high cost of instruments, he was sure, was deterring many people who might otherwise have bought their own planes. And so he set about to design a series of instruments specifically for the private flier, to meet both his quality requirements and his pocketbook. A native of Switzerland, Urfer was gifted with characteristic Swiss mechanical genius and had been for several years chief engineer of the Pioneer Instrument Company. Leaving Pioneer, he established the Aeromarine company in 1932.

From the beginning it was the basic flight instruments in which Urfer was primarily interested — compasses, air speed indicators and altimeters. With the aim of cutting costs drastically, he soon designed simplified models of each. The new models did not give readings as exact as those recorded by expensive instruments nor were they so durable. But they were more than sufficiently accurate and reliable for contact flight within a few hundred miles of a home airport. And they cost on the average only one-fifth as much as other similar instruments. As Urfer had predicted, the demand for them rose quickly. By 1940 more than 75 per cent of all flight instruments on lightplanes bore the Aeromarine name.

Came the war, and the demand for such instruments dropped abruptly — almost to the zero point. All aircraft production was geared to the military program, and military planes, from heavy bombers and fast fighters down to trainers, required instruments which would guide them through all sorts of weather and maneuvers. Cost was relatively unimportant.

"Semi-sensitive" altimeter, more accurate than prewar low-cost instrument, is calibrated so that pointer makes one revolution for each 3,000 feet. Dial is marked off at 50-foot intervals while dials on ordinary altimeters are graduated at 100- to 500-foot intervals.

But in one phase of aviation cost was decidedly important. This was the Civilian Pilot Training Program, for which the government let out contracts to private flying schools. These schools obviously could not afford expensive instruments to put into the small planes used for primary training, and so the government allowed them to continue to place orders with Aeromarine.

"Semi-Sensitive" Altimeter

For an altimeter, however, CAA required that they use something more accurate than the inexpensive models then in production. To meet the requirements, Aeromarine designed what it called a "semi-sensitive" altimeter. Calibrated so that the pointer made one revolution for every 3,000 feet and having a range of 9,000 or 12,000 feet, this was a much needed compromise between the ordinary altimeters and the sensitive ones then available. The dial was marked off at 50-foot intervals, whereas the dials on ordinary altimeters were graduated at from 100- to 500-foot intervals and those on sensitive altimeters at 10-foot intervals. Moreover, it cost only $28 as against $23 (retail) for regular altimeters and $120 for sensitive ones.

The majority of Aeromarine's wartime work, however, was devoted to producing a turn and bank indicator and various components for the telescopic sight and computer used on the B-29 for precision bombing. Like the semi-sensitive altimeter, the turn and bank indicator was designed by Urfer to meet AAF quality standards and yet to be moderately priced. Cost was $65.

Although temporarily engaged in the manufacture of more complex instruments during the war, Urfer never lost faith in his original objective of producing reliable basic instruments for the private flier as cheaply as possible. Therefore, as soon as his government contracts were ended he took up where he left off after Pearl Harbor.

Prewar Prices

Interested primarily in small 65-horsepower planes, Urfer sticks to his old thesis that they require only seven instruments — compass, airspeed indi-

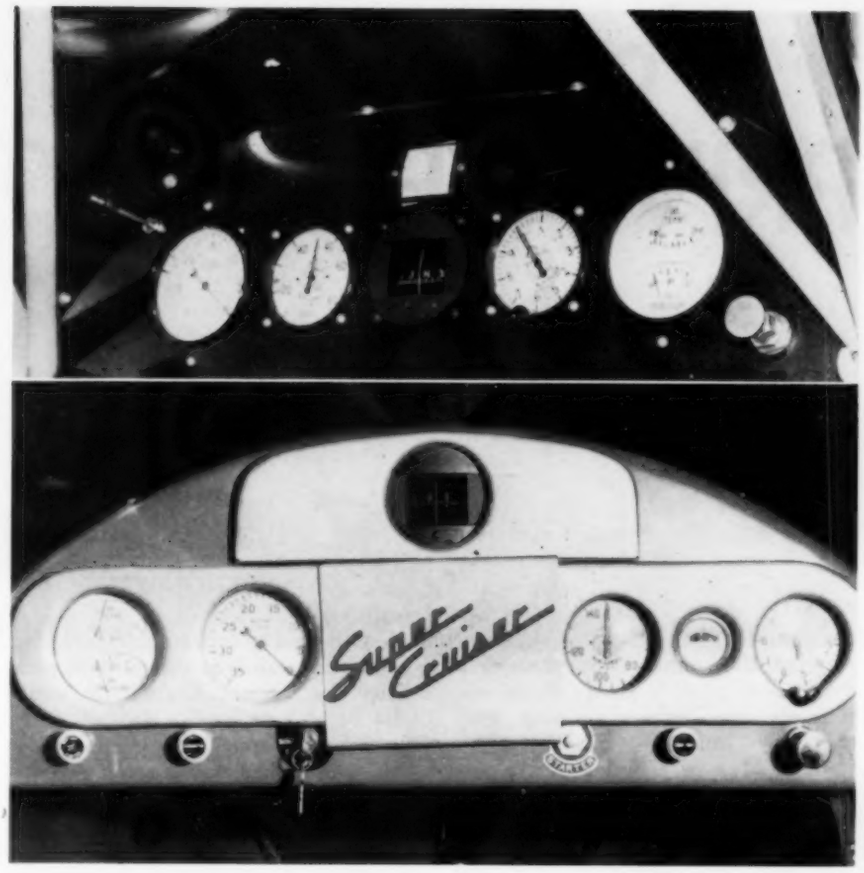
cator, altimeter, tachometer, and oil pressure, fuel pressure and fuel quantity gauges. These he is prepared to produce along the same general lines as before the war. Moreover, though costs have almost doubled, he intends to sell them at prewar prices. For example, a complete set of instruments for a Piper Cub is now exactly what it was five years ago — only about 2 per cent of the cost of the plane.

Most of these instruments are considerably improved over the 1941 models. A noteworthy example is the compass, which Urfer has redesigned for better performance. The magnets are made of alnico steel, which has better retaining qualities than the cobalt steel formerly used, and the compensating unit makes possible more accurate adjusting. Quite small, the new compass is designed so that it can either be installed in the panel or hung from the ceiling. Since production is only just getting under way, however, it will be a few months before it will be generally available. Meanwhile, production continues on former models. For lightplane altimeters, Aeromarine is still producing its prewar line and, in addition, is turning out the "semi-sensitive" one for civilian use.

New Instruments Soon

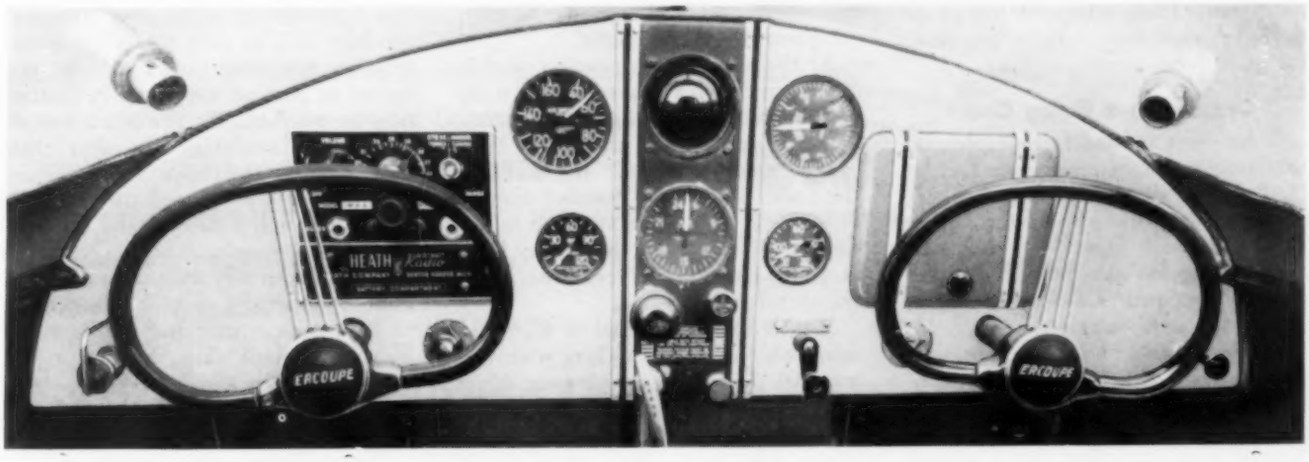
For planes in the 220-horsepower class Aeromarine will also offer several other moderately priced "semi-sensitive" instruments. One is a new improved tachometer, which was built in limited quantities for the government and which will sell for $23. Another is a rate of climb indicator with the vacuum bottle built into the instrument. This should be on the market by early summer.

Unfortunately, Aeromarine has discontinued production of its turn and bank indicator because the royalties it would have to pay at present for civilian production would make the instrument too expensive for lightplane owners. Eventually, however, Urfer hopes to have one like it on the market. Meanwhile, inexpensive ball bank indicators, with the scale reading to 10 or 20 degrees, are available for both low and medium powered planes. One small one, which has proven very useful in lightplanes, sells for only $2.95.



Typical of instruments new planes will carry are the panels on the new 65 hp. Cub Special, top, and the Cub Super Cruiser, bottom. Low-cost, better quality lightplane instruments made it possible for manufacturer to provide Cub with instruments just as reliable as the more finished looking Super Cruiser panel.

Instruments such as Aeromarine's cannot, of course, be compared to the precision instruments turned out by Kollsman and Pioneer, any more than an Ercoupe can be compared to a DC-3. Their functions are quite different. The precision instruments, such as sensitive altimeters, are designed to give an extremely accurate reading. ★ ★ ★



Ercoupe instrument panel is excellent example of how manufacturers have fitted new, improved low-cost instruments into attractive arrangement. Small diameter of instruments gives added panel room for radio, over-size glove compartment, cockpit controls.

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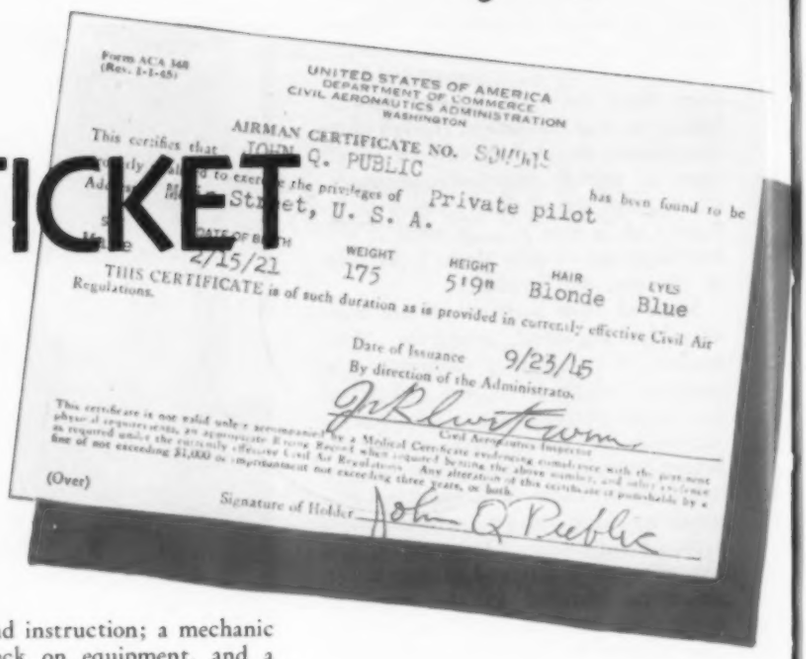
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THIS CERTIFICATE is of such duration as is provided in currently effective Civil Air Regulations.

Date of Issuance 9/23/15

By direction of the Administrator

Civil Aeronautics Inspector

This certificate is not valid unless accompanied by a Medical Certificate evidencing compliance with the appropriate physical requirements, as appropriate. Logbook record when issued bearing the above number, and other evidence as required under the currently effective Civil Air Regulations. Any alteration of this certificate is punishable by a fine of not exceeding $1,000 or imprisonment not exceeding three years, or both.

(Over)

Signature of Holder John Q Public

By RUSS BRINKLEY

HOW would you like to learn to fly and obtain your private license, within approximately thirty days, at a cost of only $100? It can be done! Costs of instruction are gradually being reduced in many parts of the country but, through a flying club plan, a group of air enthusiasts may receive training with the very smallest of investments. Careful advance planning is the answer. Such a program can be made available to both men and women and 1946 should see a large number of such clubs in operation, from one end of the nation to the other.

Flying clubs have been conducted with success but on a very small scale. Those who have benefitted from the successful clubs have not always passed on their knowledge to others. If the public had been made acquainted with the convenience of flying clubs in the past, we would certainly have more of them in operation today.

We cannot include all of the details of organization and operation of a flying club in this article, but what we have to say here will be of assistance to interested parties who wish to participate in a club. Details may be worked out in keeping with local conditions. Those who have had practical club experience may be consulted for guidance.

Organizing a Flying Club

It has been learned from experience that an even dozen members makes an ideal club group. Not more than fifteen members should be tolerated since that will mean too many potential fliers for each airplane. The group may be composed of fellow factory or office workers, neighbors or even lodge members. The chief consideration here is to enlist men who are congenial and who are financially responsible. An ideal group may include a lawyer, who can draw up a charter and bylaws; a banker who can offer financial guidance; a teacher who can aid in ground instruction; a mechanic to keep check on equipment, and a newspaper man who can provide publicity for the organization. It would also be well to have a doctor on the roster since he may provide the physical examinations for student permits. If all members will contribute time and effort to the club, expenses may be pared at every turn. This is very necessary, if members are to gain the most at the lowest cost. If a licensed flight instructor and licensed aircraft and engine mechanic are available for membership, they also can serve with a mutual benefit.

First of all, the group must be brought together for an organization meeting. One interested party can be responsible for assembling them for consideration of the club plan. It may be well to invite as many as a score of prospective members. If too many want to join, it may be possible to organize more than one group at the same meeting. A club may have several flights, with a dozen members assigned to each airplane. For convenience here, we will consider a club composed of a single flight.

At the organization meeting, a club charter and bylaws may be drawn up and almost any of the lightplane manufacturers can provide these aids. They can be modified to suit the needs of the club. Then, each member may be called upon to invest $200 as an initiation fee. He will get this money back after he learns to fly or if he leaves the club for any reason.

With a working capital of $2,400 in initiation fees in hand, along with two months' dues paid in advance (dues may be two or three dollars per month) the club will have at least $2,448 to start. The next thing is to decide whether a new or used airplane is to be purchased for the club. It is best to buy a new plane but there are still many fine used trainers available for those who do not wish to invest in new equipment. The cost of a new plane, to be considered here, will be about $2,000.

A well planned flying club, with members contributing time and effort, can pare costs to a minimum and turn out licensed pilots in a short time.

Where local airport operators will not welcome club operations, a field may be rented for club use. It will be necessary to have the Civil Aeronautics Administration inspector approve this base and, in some places, the state aviation department may also be required to pass on the field. A shelter may be provided for the plane but if this is not available, remember that thousands of shelterless airplanes are now in operation all over the country. Rental of such a field should not exceed $15 a month.

If club activities are not based at an established airport, it will be necessary to have maintenance and repairs made by a recognized shop. Fueling at an open field may also have to be done by can and funnel. This should not deter the person who wants to learn to fly at lowest cost. In the end, it will provide more practical aviation

(Continued on page 64)

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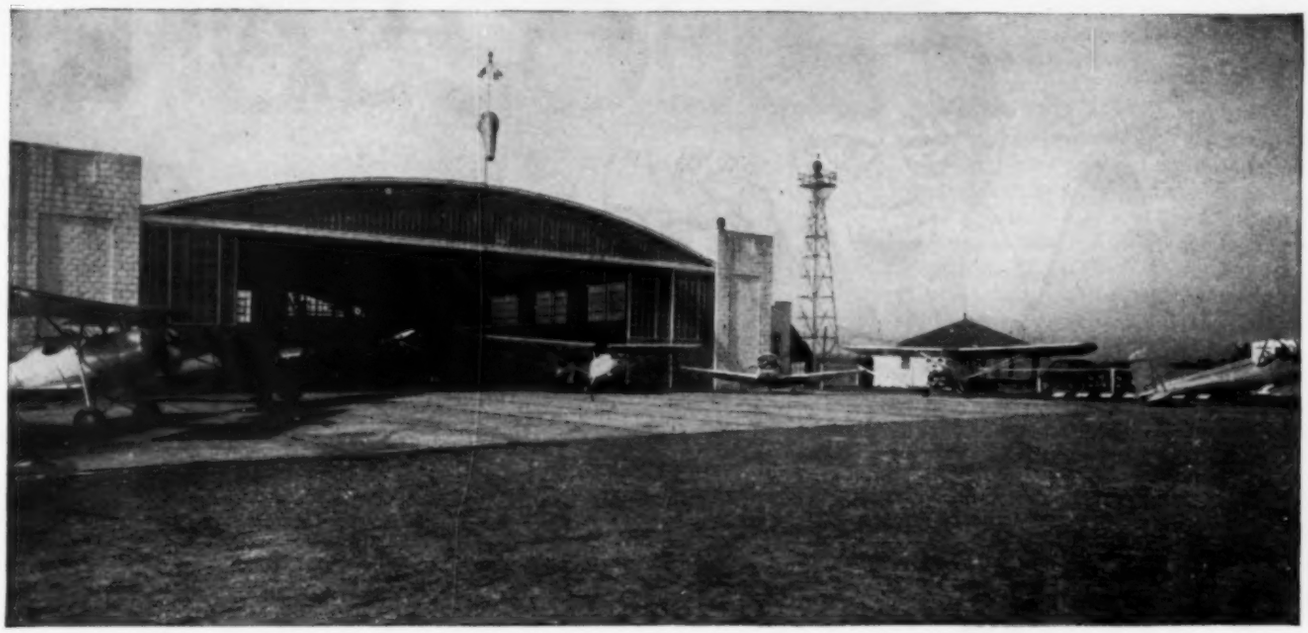

Mr. Franklin N. Knapp—*another famous Esso Dealer, is President of the Tennessee Flight Operators Association. He has been flying for almost 20 years and in 1939 began the successful operation of Knapp Flying Service, which still flourishes at Clarksville, Tennessee.*

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"Since switching, we have found Esso representatives quick to lend us valuable aid in the form of good advertising support, marketing hints, windsocks, computers, and publicity.

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MR. AIRCRAFT OWNER: For ready reference keep this list in your map case. Esso Aviation Products are on sale at the following airports in the Tennessee area. Memphis Flying Service, Memphis Municipal Airport; P. A. Keith, Ripley; Dyersburg Flying Service; Obion Flying Club, Walter Kennon (Riddle-McKay), Union City; Gill-Dove Airways, Martin; Milan Flying Service; Jackson Aircraft Sales, Gillespie Airways (McKellar Field), Jackson; Knapp Flying Service, Clarksville; Gillespie Airport, Cornelia Fort Airport, Nashville; Franklin Flying Service; Norman Air Service, Mt. Pleasant; Pulaski Flying Service; Wilks Flying Service, Fayetteville; Boyd Field, McMinnville; Tri-City Airport (Kingsport, Johnson City, Bristol); Lebanon Flying Service; Crossville Flying Service; McGee-Tyson Airport, Knoxville; Morristown Flying Service; Aeronca Airport, Johnson City; Kingsport Flying Service; Cleveland Municipal Airport; Lovell Field, Chattanooga; Skylines, Inc., Humboldt; Bomar Airport, Shelbyville; Graves Airport, Paris; Brownsville Municipal.

SAFETY

A strange change comes over many students when turned loose solo. They suddenly go "haywire" and even the best student sometimes decides his instructor is too conservative.

ACCIDENT records show that a lot of students go "haywire" after they solo. Their attitude seems to change and they get into trouble. Accidents occur with greater frequency around the three hour and fifty hour periods. Even the fellow who has been a good student up to the time of solo sometimes decides that his instructor is just too conservative, or gets cocky and can't be told anything. Many students become so elated over their achievement that they can't resist the urge to fly over their own home and show off before the family.

Last month we stressed in SOUTHERN FLIGHT the importance of establishing good basic flying habits for all routine flight procedures. Basic flying habits are usually fairly well established in the presolo period. After solo there are still more habits to form. However, in this period there will be choices and decisions which you will need to make without the help of your instructor. Just as it was necessary for you to prove to your instructor that you could fly safely before he would let you solo, you will have to show your flight examiner or CAA inspector that you can fly safely before he will pass you for a private license.

It is in the postsolo period that the pilot chooses to take either a positive or negative, good or bad, attitude toward safety. If he takes a positive attitude he soon masters the principles of safe flying. A negative attitude leads to indifference, carelessness, cockiness, recklessness and often ends in an accident. However, pilots with wrong attitudes are not the only ones who have accidents. Most of the unapproved, solo, student flying is done innocently, the pilot not knowing the hazards involved. He is not always to blame. That's why it is important to study everything available on the subject, and try to find out what causes student pilots to have accidents.

Accident Records Show Errors

Here are some accounts taken from the Civil Aeronautics Board Safety Bureau's files of student pilot accident reports. Let's see what we can learn from the errors of other students:

File No. 3520-44—"Aw, there's nothing to it, these puddle jumpers are simple and safe to fly. You can set them down in almost any little field." Probably these or similar thoughts ran through the mind of 19-year-old Student Pilot H, when he took off from Bendix Airport, South Bend. His total solo flying time amounted to four hours. At this stage of training, solo pilots are usually confined to their home airport and assigned practice areas.

After flying twenty-one miles to the community of Bremen, Indiana, he circled the farm houses, then landed in a small stubble field along the highway. Here he picked up a friend, who was not a pilot, and together they took off. For some time they circled at very low altitudes the wooded area and the town of Bremen. The student pilot then attempted to land the plane on the same little field. His luck was not so good as when he landed alone and he bounced about ten feet upon contacting the ground. Gunning the engine, he went around for a second try, only to bounce back into the air as he had done on the first. He circled for the third time. This time he came around at a low altitude and approached the field in a steep gliding turn. When about fifty feet from the ground he either stalled the plane or permitted it to slip critically. Hooking a wing tip on a shallow ditch bank, the plane slid through a wire fence and burst into flames. Both pilot and passenger lost their lives.

This is not an unusual case. The student may have been a very normal person, like many of us. He had the usual urges to experiment and in spite of his tender hours of solo experience, probably had considerable confidence in his flying ability.

Most instructors, being fully aware of the solo student's temptation to venture off, are careful to warn their students against leaving the local airport and practice area. They know the kind of trouble into which a student can get. Some students, however, disappoint their instructors and even surprise themselves with the unexpected things they do. The urge strikes them and on impulse they do what they had little intention of doing. Try to think of this when you feel an urge to leave your practice area, pay an aerial visit to a friend, carry a passenger or land on an open field.

There are other things which can be learned from this accident. While low flying, under certain conditions, is not hazardous for experienced pilots, it is always hazardous for beginners. As a beginner you have not had time to

So you've soloed! Remember that accidents occur with greatest frequency around the three-hour and fifty-hour periods. Stifle that urge to show off, respect your airplane.

AFTER SOLO

By ROCKY BANCROFT
Former Chief Accident Reports Writer for the
Civil Aeronautics Board, Safety Bureau.

master the technique of making your turns without slipping or skidding. You can lose a hundred feet of altitude very quickly in a slip. You may hook a wing tip on the ground or an obstruction. Skidding always slows the plane and invites a stall. You have not learned to divide your attention between the business of flying and the ground. While giving attention to one you neglect the other. Again, you have not yet perfected your feel of the airplane sufficiently to sense an approaching stall caused by loss of airspeed or the increased load factor of an abrupt maneuver. Finally, as a beginning pilot, you have not yet learned to make the precision type approach required for small field landing. Low flying allows little room for recovery in case of a stall or selection of a suitable field in case of engine failure.

Death in Buzzing

File No. 2121-45—When a Phoenix, Arizona, student said to his girl friend to "look out" for him, he did not realize how literal his admonishment was. On last July 7, this youngster, who had flown a total of eleven solo hours, took off for a regular practice flight. After arriving at his assigned practice area, he decided to pay his girl friend an aerial visit and flew to her home, a distance of six and one-half miles from the airport. Circling low, he dived and zoomed over her house, throwing out bits of paper and gunning the engine in an apparent effort to attract attention. Diving to within fifty feet of the ground, the student pulled up sharply into a steep climb and stalled his Luscombe 8A. Seventy-five feet from his girl's house, the plane crashed in an almost vertical, nose down attitude, killing its occupant.

This eleven-hour pilot did not know the limitations of his plane. He may not have known that even with the extra speed picked up in a dive it is quite possible to stall the airplane (has your instructor explained the high speed stall?).

File No. 941-45—Had it occurred to Student Pilot W of Rochester that he would have no place to land in case of engine failure, he would not have gotten caught over terrain at an altitude insufficient for a glide to a suitable landing spot. He was eighteen and had flown approximately three and one-half hours solo. His instructions called for him to shoot take-offs and landings. One landing and then he headed across the city of Rochester at an altitude of 1,200 feet. He was next observed in a gliding attitude for a mile and a half. When in the immediate vicinity of a playground, he made a steep, nose-high turn at an altitude of 50 feet. The engine was not running. In the turn the plane was stalled. It plummeted to the ground, crashing on its nose and one wing. Student Pilot W was fatally injured.

Smart pilots don't fly at low altitudes over terrain unsuitable for forced landings. When taking off from an airport which necessitates flight over a congested area, safe practice calls for circling in the vicinity of the airport for altitude.

File No. 531-45—Student pilot G had not yet become wire conscious or he would have avoided the wires while flying low over Whiteford Township near Toledo on March 13, 1945. Uncertificated, he had flown about seventeen solo hours, but his student certificate had expired and he had not flown for over four months prior to his solo take-off from National Airport, Toledo. A short while later, the plane was flown for twenty minutes at an altitude between 200 and 300 feet over Whiteford Township, some eight miles from National Airport. One simulated forced landing was made to within twenty feet of the ground following which the plane was flown at a low altitude for approximately one-half mile. At this point it struck high-tension lines about thirty feet high and plunged to the ground.

1. Avoid unnecessary low flying—there are no wires up above.
2. Wires are extremely difficult to see when flying into the sun.
3. Wires are sometimes invisible against a water or green foliage background.
4. Poles are frequently obscured by trees.

(Continued on page 65)

It is right after solo that a pilot chooses to take either a positive or negative, good or bad, attitude toward flying. If he takes a positive attitude, he soon masters the principles of safe flying. A negative attitude leads to indifference, carelessness, cockiness, recklessness and often ends in an accident.

BILLION-DOLLAR BOOST

(Continued from page 31)

was revised and is now in the process of being printed. It should be ready for distribution during April.

Ground school and flight school have been separated in the new Manual 50. No ground school facilities will be required for approval of a primary or commercial flying school. Five hours of ground instruction on Civil Air Regulations and one hour on parachutes are required. However, a certain amount of ground school is desirable to make a good pilot. The ground school instruction can be given at any convenient place, at the airport or elsewhere.

Ground schools are divided into basic and advanced. Basic ground school covers the subjects formerly taught for commercial license under the old Manual 50, including service of aircraft, navigational aids, radio, orientation, airways procedures, etc. Ground school is required for instructor flying school or instrument flying school approval. For instructors the ground courses consist of theory and practice of flight instruction, analysis, explanation and teaching of maneuvers. The ground instructor must hold a valid flight instructor rating. Instrument flying schools must provide ground instruction by a rated instrument pilot.

Flying schools are classed as (1) Primary, (2) Commercial, (3) Instrument, and (4) Flight Instructor. Separate requirements are set up for each classification. Ground school is required for instrument and flight instructor ratings, but it does not necessarily have to be obtained at the flying school. It can be obtained at a public school or approved ground school elsewhere if necessary.

Runway minimums for primary flying schools have been reduced from 1,800 to 1,500 feet, provided the aircraft can take off fully loaded in half the length of the runway and clear any obstacle by 50 feet. The runways must be within 30 degrees of the "average" wind direction instead of 22½ degrees of the wind direction during 75 per cent of the year as heretofore required.

Shop facilities may be either owned or contracted for. Mechanics may be regularly employed or under contract to keep up the school's equipment. Formerly the mechanic was required to be regularly employed. Liberalization of this requirement will permit the establishment of hundreds of new airfields at small towns which will be paid for by private capital and without any contribution from the national government in the form of airport assistance.

Applications for CAA flying school approval should be made to your local CAA inspector on Form ACA 387. These forms can be obtained from any CAA regional or district office. A Schools and Training Section has been newly organized by CAA to review and pass on applications the same day they are received.

Two copies of the flight curricula for each course should be attached to the completed form and it should be mailed to the nearest CAA District Office.

Securing CAA approval will help the school meet state board of education requirements in states where CAA approval is required and will place an official stamp of approval on the school in states where CAA approval is not required.

The veteran should fill out Veterans Administration Form 1950 and mail it to the Regional Office of the Veterans Administration. A certified copy of the veteran's discharge should be attached to the 1950 form. Where the cost of the course exceeds $14.70 per week the veteran must also fill out Form 1950a to permit payment at a higher rate.

Tremendous Possibilities

The effort of the GI Bill on aviation will be tremendous. There are

(Continued on page 42)

CONVERSION FROM COMBAT

By STUART ALLEY

Stuart Alley, with five Jap planes to his credit, swore off flying when he left the Marines.

WHEN I kissed my old F4U good-bye in Peleliu, I was really burned out on military flying. Like a lot of my buddies, I didn't care if I ever flew again. Up until February 23 I'd been satisfied on the ground. But I made the one mistake of going out to the Globe Aircraft Corporation in Fort Worth to take a look at a new civilian plane. Once more I got the urge to fly—this time for pleasure.

I met Harry Bibb, a Globe representative who was to fly the new Swift on the Texas Aircades. He said he had room and would take me along. Bright and early the next morning we drove out to Globe to pick up the Swift.

After we pulled the prop through a couple of times, I climbed in and the starter kicked her right over. The tachometer log had only an hour on it. I guess that was the test hop. There was plenty of room for my suit case and we hung my extra suit up in back.

As we took off and started an 80-mph. climb, I watched apprehensively. Climbing an F4U at 80 mph. is like balancing an atomic bomb on a broom stick. But I relaxed when Bibb told me the stalling speed—42 mph. Then I asked the usual questions. What rpm. for a climb? About 2,500. How much manifold pressure? About 26 inches. It was a pleasant surprise to find familiar instruments on the panel—magnetic compass, rpm., altimeter, airspeed, manifold, rate of climb, oil pressure, temperature, voltmeter, and three indicator lights (two for the wheels and one for the hydraulic system). I had never dreamed lightplanes would be so well equipped.

We landed at Stamford, Texas, and Bibb brought the plane in nicely. When full flaps dropped I caught myself watching that airspeed again. We were going so slow it seemed like walking. When we landed we were practically through rolling. During the flight, Bibb let me handle the controls while cruising to get the feel of the plane. I did a power-off stall and the nose came through smoothly. With the wing slots, I found I could rock the wings while fully stalled. That was certainly control enough for me. At cruise setting—2,375 rpm. and 23 inches manifold—the Swift indicated 120 mph. at 6,000 feet. On our return flight to Fort Worth, we flew 270 air miles in an hour and fifty-five minutes—an average ground speed of 145 mph. Fuel used totaled 12 gallons.

When we turned into the traffic pattern, I felt right at home in the Swift. Bibb let me take over and the plane landed beautifully for me. By this time I was well acquainted with the toe brakes and taxiing was a cinch.

Rather reluctantly I swung the extra suit over my shoulder and climbed out of the trim cockpit. Five hours of civilian flying had certainly changed the outlook I had when I slammed the hatch on my F4U at Peleliu. I've got some more flying to do—for pleasure. ★ ★ ★

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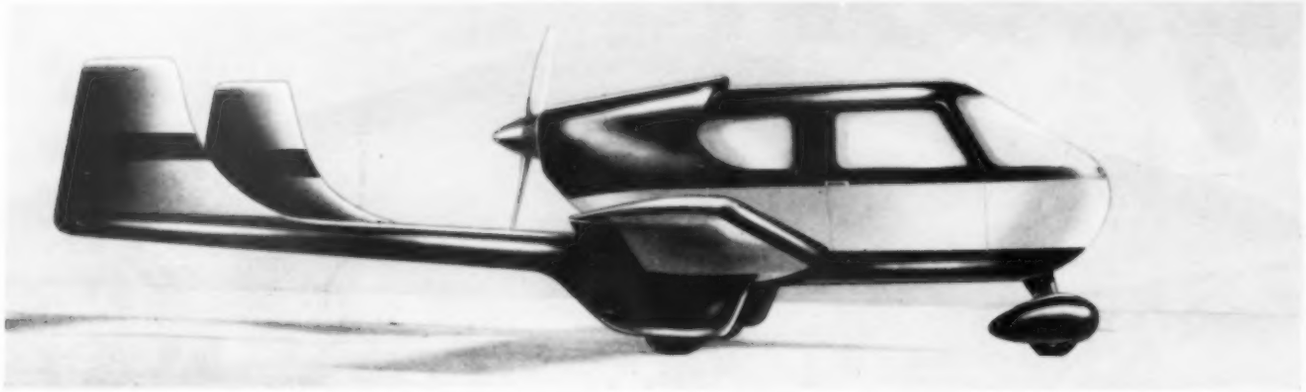

NEW PUSHER DESIGN FOR PRIVATE FLYING is the Wheelair 111-A, a four-place all-metal craft powered by a Lycoming engine rated at 160 hp. and developing 170 hp. for take-off. Preliminary data issued by Puget Pacific Planes, Inc., of Tacoma, Wash., includes: 1,350-lb. empty weight; 2,505-lb. gross weight; 135-mph. maximum speed; 120-mph. cruising (70 per cent power) speed; 106-mph. economical cruising (60 per cent power) speed; 55-mph. landing (with flaps) speed; 670-fpm. rate of climb at sea level, and 600-mi. range at 60 per cent of power. The company is a new firm whose chief engineer, Donald J. Wheeler, formerly was design engineer for Boeing Aircraft.

BILLION-DOLLAR BOOST

(Continued from page 38)

enough eligible veterans living within a ten-mile radius of every town of 5,000 in the nation to permit the establishment of a suitable airport with private funds, the future of which will be secured for the next four years with funds derived from veteran flight training. A national airport bill will not be necessary to establish these fields and taxes will not have to be raised beyond what has already been written into law.

A total of three billion dollars annually would pour into private aviation if each veteran received a private pilot license. The $72,000,000 spent on CPT in 1943 is not a drop in the bucket compared to what the GI will mean to private aviation. Approximately 160,000 training planes will be required to carry on the program at its peak which is more than four times the number now in existence.

The manufacture of even 50,000 to 75,000 planes per year will go a long way toward solving the unemployment problem in the aircraft manufacturing industry. Add to this number the persons required to manufacture aircraft accessories, radios, ground service equipment, hangars, tools, machines, etc., and the figure becomes colossal.

A maximum of 50,000 flight instructors can be employed along with 30,000 ground service personnel. It will require 30,000 A & E mechanics and mechanic helpers to keep these planes in the air. A total of 120,000 persons will be needed in the flight, ground service and maintenance operations. When this is added to the personnel needed to manufacture planes, parts and accessories to keep the program going the employment figures may surpass a half million.

Every operator owes a duty to the veteran and to the nation to see that the veteran and the government get their money's worth. The program should be used to build a sound economy in our newest and most promising industry based on sound operating practices, good service and giving full value for every dollar spent.

Minimum attainable standards should be set and adhered to by each state where the little man can get in. We do not need bigger operators and bigger airports for private flying. We need more little operators and more small airports. The opportunity is here. Let's see to it that we pursue it wisely. ★ ★ ★

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MIDGET MUSTANG

(Continued from page 30)

Municipal Airport, and Sales Director Ronald Burla is accepting orders for June delivery. Reports have Kindelberger and his associates figuring on a unique plan whereby an initial order of 250 Navions will be produced and "sold on the ramp as they roll out of the back door" of the Inglewood, California, factory. Whether such a plan would be temporary and purely experimental is not known, but there are a lot of established distributors and dealers who would like to take on the Navion and almost any lightplane design North American might produce. As one operator put it, "North American hasn't built anything but leaders yet, and we'll go for any model they put out." ★ ★ ★

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Illustrated is the Republic XF-12. This giant photo-reconnaissance plane is the military forerunner of the Republic "Rainbow", a commercial transport expected to cruise at over 400 miles per hour at 40,000 feet, with a range of over 4,000 miles. • The XF-12, practically a flying photographic lab, is equipped with Cleveland Pneumatic AEROLS to protect plane, crew, and equipment during landings and takeoffs . . . Thus another plane joins the long list of outstanding aircraft which are Aerol-equipped.

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Looking to the future and the needs of private fliers, Star submits the Prefabricated sectional steel multi-hangar. This new type hangar provides individual and limitless storage with maximum space conservation for small airports. These hangars are outstanding for safe and economical construction, complete privacy and perfect accessibility. Information available upon request.

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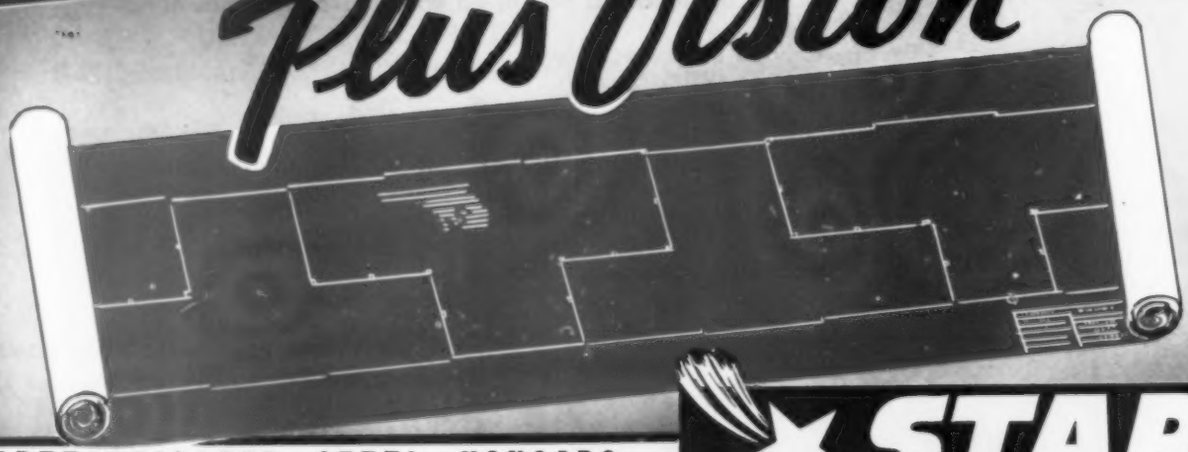

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April 1946

MODERN Airports

VOL. V NO. 2

Fueling Facilities for Small Airports

Elaborate aviation fueling systems are not essential, but safety and efficiency demand recognition of fuel characteristics.

By RUDOLPH H. TOLSON

THE refueling of aircraft is one of the most important services performed at an airfield. Too much emphasis cannot be placed on the operation as the lives of pilots and passengers depend on the correctness of the procedure.

An installation at an airfield for the storage and dispensing of aircraft fuels should not be considered in the same category as facilities for the handling of fuels for ground vehicles. Special precautions must be taken in the design and construction of aircraft fueling facilities to insure correct operation against contamination of fuels, mixing of fuels of different octane ratings, and the delivery of fuels carrying dangerous amounts of water. Devices must be provided for the prevention and dissipation of static electrical charges which might, by uncontrolled discharge, ignite inflammable vapors.

Facilities for the storage and dispensing of aircraft fuels at an airport need not consist of an elaborate and extensive system, provided due consideration is given to future expansion and the installation is so designed as to allow additions without expensive changes in the original installation. Careful study should be made of the airport plan prior to the installation of the fueling system in order that other facilities may be constructed without encroachment on the clearances required for the safe handling of inflammable petroleum products.

The fueling system at a small airport may consist of a safe means of fueling aircraft from drums or barrels, while at a large airport the system may consist of thousands of gallons of storage for several grades of fuel with pipe distribution lines extended to many aircraft fueling locations. There are many different types of fueling equipment made by many manufacturers and a careful analysis should be made of the particular fueling requirements of the individual airport in order that a wise choice will be made.

The error commonly made is the assumption that the handling of gasoline as an engine fuel is merely a hydraulic problem computed with water as a base with a few correction factors taken into account. Such, however, is not the case, as gasoline is sensitive to heat, altitude and other numerous conditions. Where a complicated problem is involved it is considered advisable to secure competent technical advice in order to avoid the inconveniences and hazards of learning the hard way.

Vapors Require Cautious Handling

Some of the peculiar characteristics of inflammable petroleum products developed for aircraft engines must be recognized in order to appreciate the problems of the storage and handling of aircraft fuels. Gasoline as a liquid does not ignite or burn as it is only the vapor which constitutes the fuel. Gasoline will give off ignitable vapors in quantity at ordinary temperatures and even below zero degrees Fahrenheit. Mixtures of these vapors with air, approximately between 1 and 6 per cent by volume, are combustible when heated to ignition temperature, which is approximately 540 degrees Fahrenheit, produced by an electric spark or any hot body, such as a hot exhaust pipe, having a high enough temperature.

Liquid gasoline expands about 0.7 per cent for each 10 degree Fahrenheit increase in temperature. When containers are filled with an expected 10 degree rise in temperature, an allowance of 5 per cent should be made for expansion—a good point to remember when storing drums of gasoline where subject to heat from sunlight.

Gasoline vapors under ordinary conditions are heavier than air and will flow into pits and other low places. When it accumulates in such places it produces explosion hazards and is dangerous to personnel who may breathe concentrations even below that required to produce combustible or explosive mixtures with air. Where changing atmosphere conditions are encountered, it is most difficult to ascertain, with any degree of accuracy, the limiting boundaries of the hazardous area. Gasoline vapor trains may extend considerable distance from the source of release, under certain conditions, and ignition at any point in the chain will result in flash-back to the source with disastrous results.

An informed operator will at all times be extremely suspicious of any gasoline container that has been emptied, but not cleaned, as it may contain enough air to be explosive. He will regard filled containers as relatively safe, except under low temperature conditions. He will not become terrified in case a loaded gasoline truck catches fire at the fill hatch. He will realize that the vapor space in the tank will normally contain more than 6 per cent of gasoline vapor and that the flame is not likely to be drawn into the tank. He can readily extinguish the flame by closing the hatch cover or by covering the opening with a blanket or similar covering.

Fueling From Drums

The safe fueling of aircraft from drums, or barrels, is not as simple as it may appear. In the storage of such containers a problem occurs. A hazard exists in the generation of dangerous pressures in gas-tight containers that are not provided with adequate vent valves; not from combustion inside them, but from excess vapor pressure built up in such containers when exposed to outside fires. A serious group hazard exists where cans or drums are involved in a conflagration. This hazard can largely be obviated by the proper segregation and storage of such containers. When possible, drums or barrels containing aircraft engine fuels should be stored under cover in a cool place where air can circulate. No empty, used, or partly filled gasoline drum should be stored in any building containing other occupancy. Gasoline should never be poured from one container to another in a closed room or building. Drums in the open should be stored, preferably, on their sides. Under certain conditions, or when in use with pumps, the drums may be stored on end, in which case the drums should be tilted slightly so that water will not collect over the bungs.

The safest method for withdrawal of gasoline from drums is by use of a hand pump. In any event, before withdrawal of gasoline from a drum,

This Month's MODERN AIRPORT

North Carolina's Rocky Mount Municipal Airport, operated by Hawthorne Flying Service with Lee B. Berie as manager, is located one mile from city of 40,000. Modern restaurant, shown in air view, serves both main highway autoists and air travelers.

a test should be made for water by inserting a stick full to the bottom of the drum, having water detecting paper attached to the bottom three inches of the stick, or an application of water detecting paste, or paint. When not in use, the drum should have the pump removed and the bungs tightly closed against the entrance of water or air. The breathing action through a loose fitting pump connection, or bung plug, occasioned by the heating and cooling of the drum's contents by temperature changes, may cause condensation inside the drum such as to introduce considerable water and also result in the flaking of galvanizing material, and the deposit of considerable rust.

Any fuel delivered to an aircraft from drums should be passed through a fine screen of at least 100 mesh, for reasons above given, and because some hand pumps have iron working parts and pipe which rapidly rust when in gasoline service and infrequently used. Pumps having bronze working parts and brass or copper pipes are preferred as they resist corrosion and are not as likely to produce friction sparks.

The factor of static electricity should not be overlooked when fueling from drums. A wire, with battery clips at both ends, should be used for the dissipation of static electricity by connecting one end to the drum rim, or pump, and the other to the container or tank being filled.

Portable Tank Units

The type of system which may be considered to lie between the fueling of aircraft from simple containers and the installation of fixed facilities, may consist of a portable tank unit without self-propelling features. Such a unit may consist of a 250 or 500 gallon tank, mounted on a trailer and fitted with a small gasoline-engine-driven pump. The unit may be equipped with a water separator, air eliminator, strainer, meter, hose, hose reel, and static electrical hand line. The unit can be towed from plane to plane by use of automobile, jeep, or aircraft tug. Points to consider in the use of such a mobile unit are—the exhaust of the gasoline engine for driving the pump be equipped with flame arrestor and that the ignition system of the motor be totally enclosed against the entrance of gasoline vapor. Obviously, such portable units should not be used for refueling planes inside hangars, even though the mobility of the unit would make such a practice inviting.

Standard Pump System

The equipment usually considered, when a fixed installation for storing and delivering fuel at a small airfield is contemplated, consists of a standard underground tank and a conventional service station pump. Certainly, the installation of such equipment, purchased or supplied from second-hand stock, offers the cheapest solution. That type of installation has several disadvantages. The usual service station pump is of such height as to constitute a hazard to aircraft unless the unit is erected a safe distance from taxiing traffic, in which case a long, difficult to store, hose is necessary.

Handy for all airports is this Fuel-A-Plane trailer dispenser developed by Harman Equipment Co. of Los Angeles. Two-way suction manifold is used for pumping fuel directly from barrels or storage tank into trailer and from trailer into airplane tank, and the unit can be used to defuel aircraft. It dispenses at the rate of 15 to 18 gallons per minute.

Any second-hand gasoline equipment, removed from automotive service, must be viewed with suspicion when contemplated for aircraft use. The storage tank may not have been thoroughly cleaned and dirt, scale, rust, and other impurities hazardous to aircraft may be present in the tank. The pump suction pipe in the tank may not be of appropriate design, nor terminate sufficient distance above the bottom of the tank as necessary to avoid the drawing-up of residual impurities or water into the fueling system.

Conventional automotive type gasoline systems to be used for aircraft service should be provided with certain cardinal safeguards. The tank should be installed to slope away from the pump suction end for sump effect collection of water and should have an opening toward the low end of the tank for water testing and removal by hand pump. The end of the suction pipe, toward the bottom of the tank, should be closed with liquid entrance provided around the side of the pipe, near the bottom, to preclude the lifting from the bottom of the tank of any water, scale, rust or sludge into the suction pipe. The tank fill and gauge pipes should terminate sufficiently high above the surrounding grade to prevent the entrance of water into the storage tank. The fill and gauge hatches, or caps, should be of the locking type, tight against vapor loss and the entrance of water. The vent pipe should be of ample size for the pumping and filling operations and should slope without traps from its terminal location toward the tank. The vent should extend at least 12 feet above grade and terminate at least 3 feet above and away from any opening into a building or enclosure, and be equipped with a rain-proof head, provided with flame arresting screens. The pump suction pipe should be of ample size for the capacity of the pump and should be buried sufficient depth below grade to be insulated from heat from sunlight, to reduce vapor locking, and to be safe from mechanical injury imposed by heavily loaded vehicles. The fill hose should be of material suitable for gasoline service and should have a built-in static electrical ground wire mechanically bonded to the couplings and nozzle. The hose nozzle should be of the self-closing type and should have a static electrical ground wire with one end bonded to the nozzle and the other end provided with a spring loaded clamp for connection to aircraft prior to refueling.

Compact low-type units, developed especially for fueling aircraft, are now available and afford features not provided in the usual commercial service station type installation. These unitized systems may consist of an electric motor driven pump, strainer, air eliminator, water separator and sufficient hose on a reel to reach aircraft located a safe distance from the unit.

Larger installations may consist of fueling pits located on the apron and housing meter, strainer, air release, and hose on a reel. Such arrangements allow several fueling pits placed at locations remote from the storage tanks and pumps, with supply pipe lines carrying the fuel.

Still larger airports may make use of fueling trucks, which are desirable due to mobility, but which are not economically feasible at the small airport due to the capital investment in a piece of equipment which must be at the airport at all times and cannot be used for other purposes. ★ ★ ★

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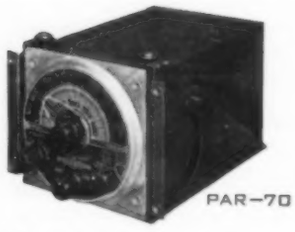

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For additional information on these units, or for full details on the complete Bendix Flightweight Radio line, ask your airport operator or write Bendix Radio Division, Personal Aviation Sales.

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Municipal Obligations in Airport Operations

By JOHN H. FREDERICK

IT has become clear that most airports generally cannot pay an adequate return on privately invested capital. They therefore offer little attraction as business projects. But at the same time it is quite evident that airports are municipal utilities deserving of support, even though a considerable outlay of tax-derived funds may be required in keeping them up. Until 1934, the number of commercial and private airports exceeded the number under municipal control, but since then the municipal group has been in the lead in numbers partly because of the fact that after that date federal funds became available for public airport use only.

Funds for airport operation and maintenance usually come from:

1. The annual city or county budget.
2. Special taxes levied for airport purposes.
3. Revenue from the rental of airport property.
4. Revenue from concessions.
5. Revenue from the sale of gasoline and oil.
6. Revenue from landing fees paid by airlines.

It is impossible entirely to avoid some conflict between government ownership and private industry in the development of airports. At the present time some in the aviation industry are urging that airports be owned by municipalities, counties or states. This is sound, practical, and within the realm of governmental function when one considers that airports:

1. Will become an integral part of our whole transportation system.
2. Will become an integral part of our national defense system.
3. Will be available for public use.
4. Are a necessity to abate the nuisance of aircraft landing on unauthorized areas.
5. That a governmental body has the power to acquire the necessary land areas and to protect the surrounding air space and approach zones.
6. That the cost of these installations has been and will be such that it must be borne in part at least by the general public in the public interest.

Cities Are Aviation Landlords

Municipalities are the owners of aviation ground facilities, the greatest single factor in the operation of our national air transportation system, and so become landlords to the aviation industry, which can't do business, generally speaking, without the airport rental property which the cities control. This being so, municipalities should adopt the following attitudes toward the secondary commercial activities which attach themselves to their airports and landing areas:

1. The cities should adopt a long-range point of view toward current airport operation and maintenance costs which, of necessity, must be borne largely by the taxpayers until the aviation business comes of age and becomes a larger industry.
2. The cities should be careful in renting airport property, or concessions, so writing lease agreements as to insure increased rents as the rental value of airport property increases.
3. Inasmuch as ground leases for airport property will need to be of long duration so that buildings constructed by lessees can be amortized, the cities should protect themselves from poor operations by reserving the right to cancel any lease, for cause, upon payment of the lessee's depreciated capital investment in the buildings constructed on the airport property.

Any analysis of rent agreements for airport property should be preceded by a listing of the rent-producing assets which will exist upon a city's airport. Some of these might better be called concessions, or privileges of doing business. These revenue sources of two kinds: those arising from aeronautical activity, and those from non-aeronautical activity.

The rent to be received by the municipality from various business enterprises conducted on the airport will come largely from the following rentals:

1. Office space in the administration building.
2. Hangar lots for the sale and service of aircraft.
3. Hangars and other buildings owned by the city.
4. Fuel concessions.
5. Space for airline operations.
6. Space for garage and storage facilities.
7. Space for automobile gasoline and service station.
8. Space for freight warehouse buildings.
9. Restaurant concession space.
10. Other concessions.

The nature of the growth of the aviation industry will leave the municipalities in what will amount to monopolistic control of municipal airport landing areas. The control of these landing areas will bring a similar control over the secondary commercial activities which are a necessary part of air transportation. While many or all of these secondary commercial activities may be operated by private industry, the cities will nevertheless find themselves operating a governmental public utility.

Equitable Percentage Leases

These enterprises attached to the aviation industry will be prepared to pay for the use of the city's property, or for the privilege of doing business upon the city's property, an amount equal to what may be a proper rental charge based on the volume of business to be enjoyed by the lessee. "Percentage leasing" has become increasingly popular in recent years.

A "percentage lease" is one in which the rent for business property is determined each year by the volume of the lessee's sales. It is usually written with a minimum guaranteed rent. If the property is rented for its best use, and if the percentage is fair, both the lessor and the lessee will be treated fairly when the value of the rented property increases or decreases. If an airport is going to use percentage leases, care must be exercised in the selection of lessees, inasmuch as the city's rent revenue will depend, to a large extent, upon the capability of the lessees.

Percentage leases, and in fact, all leases for municipal airport property, should provide for termination by the city in the event the lessee's operation does not meet minimum standards of quality. This is not a difficult qualification to overcome when the city is leasing a concession, or building, or space in a building. It becomes a more difficult matter when the property rented is land upon which the lessee will construct a building. Such a lease will necessarily be of long duration to provide for amortization of the building cost. If the city may terminate the lease, even with cause, some form of recompense is due the lessee. Two methods of reimbursement are suggested. One is that the city purchase the building from the dispossesed lessee at 90 per cent of its

Modern Airports

Model Lease for Airport Operator

Municipal airport owners and airport service operators everywhere will find much of interest in a model lease negotiated by the City of Eldon, Missouri, and the firm of Associated Airports, Inc., for the operation of the Eldon Airpark. It is being published here for the information of those seeking data on the form and details of airport leases.

1. **THIS AGREEMENT**, made and entered into this day of , 1946, by and between the CITY OF ELDON, MISSOURI, a municipal corporation, hereinafter designated as Lessor, and the ASSOCIATED AIRPORTS, INCORPORATED, ELDON, MISSOURI, hereinafter designated as Lessee, WITNESSETH:

2. That for and in consideration of the rents, covenants, and agreements herein set out, to be faithfully paid, kept and performed by Lessee, Lessor hereby leases and lets to said Lessee the following described MODEL AIRPARK, to-wit: [Detailed notes and bounds of property follow.]

The Lessor reserves the right to further develop or improve the landing area of the Airpark as it sees fit, regardless of the desires or views of the Lessee, and without interference or hindrance.

The Lessor reserves the right, but shall not be obligated to the Lessee, to maintain and keep in repair the landing area of the Airpark and all publicly owned facilities of the Airpark, together with the right to direct and control all activities of the Lessee in this regard.

The Lessor reserves the right to take any action it considers necessary to protect the aerial approaches of the airpark against obstruction, together with the right to prevent the Lessee from erecting, or permitting to be erected, any building or other structure on the Airpark which, in the opinion of Lessor, would limit the usefulness of the Airpark or constitute a hazard to aircraft.

3. TO HAVE AND TO HOLD for a term of ten years from the date hereof, with the privilege and option in Lessee to renew this lease for an additional term of ten years, upon giving Lessor notice in writing of its intention so to do at least thirty days prior to the termination of said first ten-year period. Said notice in writing shall be addressed to the City Clerk of the CITY OF ELDON, MISSOURI, and may be delivered in person or by registered mail.

4. As rent Lessee covenants and agrees to pay to Lessor the sum of $1.00 per year payable in advance. In addition to said $1.00 per year Lessee shall also pay to Lessor the sum of $25.00 per month in advance on the first day of each and every month during the term of this lease, or any extension thereof, which said additional payments are as rental for the dwelling house and buildings adjacent thereto and located at and upon said above described premises.

5. As further rent Lessee covenants and agrees to pay to Lessor a sum equal to 2 cents for each and every gallon of gasoline sold by it at and upon said Airpark.

6. The Lessee agrees to operate the Airpark for the use and benefit of the public; to make available all airport facilities and services to the public, without unjust discrimination; and to refrain from imposing or levying excessive, discriminatory, or otherwise unreasonable charges or fees for any use of the Airpark or its facilities or for any Airpark service. It is understood and agreed that nothing herein contained shall be construed to grant or authorize the granting of an exclusive right within the meaning of Section 303 of the Civil Aeronautics Act of 1938.

7. As a part of the consideration of this lease, Lessee covenants and agrees to erect upon said above described premises a suitable repair and service shop and suitable hangars. Said repair and service shop and all hangars shall be built and constructed in accordance with plans and specifications to be approved by Lessor through its proper officials. It is further understood and agreed that Lessor shall erect at and upon said above described premises a suitable administration building, said administration building to contain an Airpark manager's office, a lounge room, a small lobby, and suitable rest rooms. It is understood that Lessor shall provide suitable and sufficient septic tanks to care for all sewage. Lessee shall have the right and option to erect additional structures and facilities on the Airpark at its own expense, provided, however, that any additional facilities or structures so erected by the Lessee shall be built subject to the approval of the Lessor. It is expressly agreed between the parties that any buildings or other structures erected by the Lessee shall remain the property of the Lessee, provided, however, that the Lessor shall have the right and option, upon written notice of thirty (30) days prior to the expiration or termination of this lease, or any extension thereof, to purchase such buildings from Lessee at a sum to be determined by three appraisers, one to be selected by Lessor and one by Lessee, and one by said two persons. Lessee shall have the right to sublease the whole or any part of the buildings which it erects at its own expense, provided that such sublease is consented to in writing by Lessor, and provided further that the sublessee shall take such premises subject to the terms and conditions of this lease.

8. Lessor shall furnish all water used at said above described Airpark, including water for said dwelling house located thereon.

9. Lessee shall pay all the cost of electric current used at and upon said above described premises, as well as all fuel costs.

10. As a part of the consideration for this lease, Lessee covenants and agrees to maintain said Airpark, including all buildings and the dwelling house and buildings adjacent thereto, located thereon, and all taxi strips and runways, and all other areas thereon in a good and safe condition and as neat and clean as practicable. It is understood that Lessor will keep the buildings owned by it fully insured against loss and damage by fire or wind storm and that in the event of a loss by fire or wind storm Lessor will repair and replace such loss and damage. It is likewise understood and agreed that Lessee shall keep the buildings owned by it at said Airpark fully insured against loss and damage by fire and wind storm, and that in the event of loss or damage by fire or wind storm it will replace or repair the same.

11. Lessee agrees to observe and obey, during the term of this lease, all laws, ordinances, rules and regulations promulgated and enforced by Lessor or by any other proper authority having jurisdiction over the conduct and operation of the Airpark and aircraft using it.

12. Lessee shall carry an adequate amount of public and property damage liability insurance on its aircraft in a reliable insurance company, which said policy shall be taken out by it in the joint names of Lessee and Lessor.

13. It is understood and agreed by and between the Lessor and Lessee that Lessee shall use the above described Airpark and the facilities thereon as and for an Airpark, and Lessee shall furnish, among furnished facilities to the flying public, the following facilities, to-wit: **a.** Flight instruction. **b.** Airplane rentals. **c.** Airplane charters. **d.** Airplane sales and related merchandise. **e.** Airplane parts and supplies. **f.** Airplane service, storage and hangar repairs. **g.** Suitable ground transportation as deemed desirable.

14. It is understood and agreed by and between Lessor and Lessee that the Airpark herein mentioned is a model sponsored by Lessor for the benefit of the general public and that other municipalities and agencies may desire to investigate and know about the detailed operations of said Airpark. To the end that this information may be available, Lessee agrees to the following, to-wit: **a.** To file with Lessor a schedule of fees to be charged for the various services rendered at said Airpark. **b.** To keep accurate records of all income and expenditures pertaining to Lessor or to anyone whom it may designate at any reasonable time, and especially to the Missouri State Department of Resources and Development. **c.** To permit the Missouri State Department of Resources and Development to have access to said Airpark at any and all reasonable times for the purpose of making any reasonable inspection thereat and for the further purpose of developing and testing new materials and equipments designed for Airpark and Airport construction, maintenance, and development.

15. This contract cannot be modified or changed except upon the written agreement of the parties hereto.

16. During time of war or national emergency, the Lessor shall have the right to lease the landing area or any part thereof to the United States Government for military or naval use, and, if any such lease is executed, the provisions of this instrument, insofar as they are inconsistent with the provisions of the lease to the Government, shall be suspended.

17. This lease shall not be assigned by Lessee without having had and obtained the prior written consent of Lessor.

18. Lessee covenants and agrees that it will appoint and designate a suitable experienced and proper person as the manager of the above described Airpark and that said Airpark manager shall reside in the vicinity of the City of Eldon, Missouri. He shall be in complete charge of said Airpark and shall devote his entire time to the management thereof, and he shall diligently oversee, direct, and control all maintenance, aircraft service and aircraft operation thereat, and it shall be his duty to see that the same is maintained in a safe and proper flying condition at all times and that prompt and courteous service is available to the general public.

19. Lessee agrees to file a schedule of fees charged at said Airpark with the Lessor, said fees to be prominently displayed at this Airpark premises at all times. Lessee further agrees to notify Lessor thirty days in advance of any changes made in fees charged for services at said Airpark.

20. This lease shall be subordinate to the provisions of any existing or future agreement between Lessor and the United States relative to the operation or maintenance of the Airpark, the execution of which has been or may be required as a condition precedent to the expenditure of Federal funds for the development of the Airpark.

21. As a part of the consideration herefor moving from Lessor to Lessee, Lessor herewith delivers to Lessee a commercial operator's license so that Lessee may carry out the terms and provisions hereof inuring to the benefit of Lessor.

IN WITNESS WHEREOF the parties hereto have affixed their names and seals the day and year first above written.

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depreciated value, the original lease term being considered the full depreciation period. The other is that the building might be sold and the proceeds paid over to the lessee.

Municipalities should avoid making exclusive privilege leases and contracts even though quite attractive propositions may be proposed at various times. Aviation enterprises such as the following should not be operated on a monopolistic basis:

1. Gasoline and oil sales.
2. Storage, service, repair and sale of aircraft.
3. Operation of airline charter, sightseeing, and feederline services.
4. Flight instruction and all student training.

Exclusive contracts for conducting these businesses can and do result in restricted service, uncompetitive prices and charges, limited choice of products, peculiarities of individual management, and the not unusual creation of factions within the community among other prospective lessees who in turn infect the general public.

The experience of many cities indicates that the purpose of service to the public is usually defeated when an exclusive privilege for use of the city's business property on the airport is granted to one person or company. This is true because such an agreement amounts to a virtual monopoly for the business use of a property upon which public funds have been expended. This definitely is not in the public interest. Further, it appears that revenue to a municipality from the rental of airport business property will be less under such an arrangement, because freedom from competition almost inevitably results in less and poorer activity.

The only exceptions are businesses of the concession type which have no relation to flight activity, such as restaurants, taxi franchises, car renting agencies, etc. ★ ★ ★

The New Cessna is here!

Mustang AVIATION, INC.

There's something in the air! It's the new Cessna 140, a new high in light airplane performance, speed and value.

The Cessna 140 is a two-place, side-by-side airplane with an 85-hp. Continental engine.

This fast, safely engineered Cessna gives you a full 4-hour gasoline capacity, positive-action hydraulic brakes, self-starter and generator, navigation lights and the patented Cessna safety landing gear that tiptoes across rough fields, taxis easily even in high winds that keep most light airplanes in the hangar, and actually combats ground-looping tendencies. Another big plus is that standard equipment on the 140 includes flaps with full range control for both glide angle in landing and extra lift for short take-offs.

The sound-proof beautifully upholstered cabin has excellent visibility including wide-vision rear windows. Priced at less than $3,000.00 f. o. b. Wichita, this new Cessna 140 is the plane that you should fly before you buy your personal plane.

The Cessna 120 also gives you all the advantages of all-metal structure, an 85-hp. Continental engine, the patented, safety landing gear, sun-proof Plexiglass windshield, two wide cabin doors, four-hour fuel capacity . . . but it is not equipped with starter, generator and flaps . . . to deliver for less than $2,500.00 f. o. b. Wichita. Be sure to see these two high-performance, safety-engineered personal planes before you buy.

MUSTANG FIELD — Northwest Highway and Abrams Road, Dallas, Texas

N. T. WOMACK **J. O. ("Toots") WOMACK** **N. T. WOMACK, JR.**

What Price Service

The average airport operator would like to provide his transient customers with good line service, comfortable lounges and other conveniences. He often finds this difficult, and sometimes impossible, to do.

By JOE JAMES

CHANCES are the first man to "buzz" an airport hangar wasn't showing off—he was probably trying to chase somebody out to service his plane when he landed. While service is something every airplane owner expects, any pilot who has flown as far as fifty miles cross-country can tell a depressing story about deserted ramps, locked gas pits, and empty operations offices. There are several reasons why many airports are not always giving transient pilots A-1 service. Let's have a look at some of these reasons, if for nothing more than to appreciate the airport that does manage, somehow, to give top-notch service.

Since pilots expect the same quality of service at an airport as at a filling station, let's compare a few figures. There are about 30,000,000 automobiles operating in the United States. These automobiles are serviced by 242,000 filling stations, or about 124 cars per filling station. On the other hand, 32,000 civilian planes currently have 4,005 airports available for use. That averages eight planes for each airport. Even if the number of civilian planes increases to 50,000 or 70,000 by next year, and the number of airports reaches 5,000, one airport will still serve only from ten to fourteen planes —quite a contrast when compared with the filling station industry's volume of business.

"Why doesn't the average small airport provide better service?" We put that question up to the operators of a well known turf field with an excellent reputation for service. An experienced pilot and veteran airport operator, the man questioned has plenty of cross-country experience and knows problems of both operator and private flier.

"That's a good question," admitted the operator, "and it's not an easy one to answer, particularly when some of my customers may take what I say the wrong way.

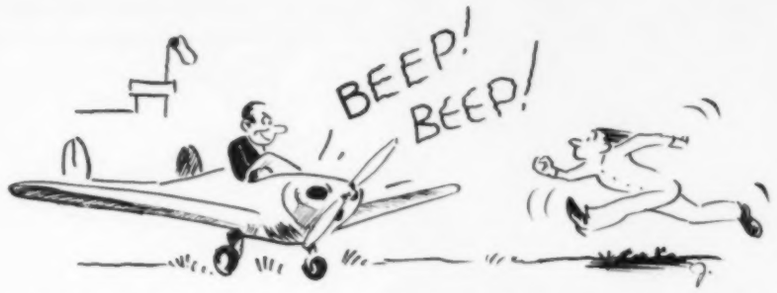
"I've been in this business a long time," our friend continued, "and I've seen a lot of other airports—probably spent as much time waiting for service as the next fellow. But I do think a majority of the operators are doing the best they can—under the circumstances. Now don't get me wrong—I don't justify dirty restrooms, badly kept facilities, and a don't-give-a-damn attitude. At the same time, I do think if transient pilots knew something about the operator's problems they'd be a lot slower to criticize."

Line Service Is Expensive

While the operator we questioned employs three men to handle line servicing and help in the shop, he enumerated plenty of reasons why other operators may not go to that expense. An operator who handles transient business in a slipshod manner would like to give better service. The only drawback is that the operator usually figures how much it costs him to give that service and then computes his profit. The figures generally run about like this: Transient traffic makes up 5 per cent of the small airport's business. Ten transient planes a day would be a generous figure. Each plane would require five to seven gallons of gasoline and half of the planes would need a quart of oil. Profit on gasoline, at nine cents net profit a gallon, would total $6; profit on oil would amount to about 75 cents.

To have a man on hand to meet all planes, the operator must hire two men. A summertime working day runs from 7:30 a. m. until 9 at night and at least two men would be needed. Minimum wages for unskilled labor—and you can underline "unskilled"—are 65 cents an hour. Two men working eight hours each would cost the operator $10.40 a day. When the operator compares that $10.40 cost with $6.75 profit, you can see why he can't afford to go too strong for a super-duper service.

Even though the operator hires two men to handle transient traffic, he cannot be certain arrivals will get



Transient pilots will be interested to learn that one private flier has conceived a sure-fire way to get service at strange airports. Charles Adler, Jr., Baltimore electrical engineer, gets service in a hurry when he taxies up to the ramp. Secret of Adler's success is an automobile horn installed in the nose of his Ercoupe.

quick, adequate service. "Quite often all the transient business comes in at once and we still take mechanics out of the shop to help out," our friend explained. Partly to offset erratic arrivals, the three men employed at his airport have collateral duties in the shop.

When you consider that mechanics cost the operator $1 to $1.25 an hour, you really appreciate their services at the gas pit—particularly when servicing an airplane takes four to five times as long as servicing an automobile. After the pilot leaves his plane at the gas pit, an attendant services the plane, starts the engine, and taxies to a spot on the line. If the plane needs ten gallons of gasoline, profit for the operator amounts to 50 cents. A mechanic requires fifteen minutes or more to do the servicing and minimum cost would be 35 cents. This gives you an idea why some operators act as though they are doing you a favor when gassing your plane. Also, it indicates why operators are tempted to concentrate on selling instruction, flight time and overhaul work. Transient traffic is something many handle as best they can without increasing overhead.

"When you see how much it costs to have even one man on hand to meet an airplane, you sorta lift an eyebrow at some of these pictures in magazines," our friend, the operator, grinned. "For instance, just the other day I saw a picture of five men servicing one airplane. One man was checking the tires, another was cleaning the windshield, a third was gassing the plane, a fourth was pointing the way to the restroom, and the fifth was brushing off the pilot. The airport operator said such service paid off because the pilot later bought an airspeed indicator. You have to sell a lot of airspeed indicators to keep up with that kind of overhead!"

Handicaps Facing Operators

While he agrees that transient pilots deserve lunch rooms, lounges and transportation, the operator lists logical reasons why many airport operators cannot or hesitate to install such services. The volume of business, present and potential, is not large enough. Airport leases are another thing to consider. Many operators have short leases and certainly cannot be blamed for going slow on improvements.

No airport operator likes to see his famished customers pumping "lunch" out of a penny peanut machine. Every airport operator would like a neat short-order restaurant. But a restaurant operator demands a steady flow of business before investing a sizeable sum in a lunchroom. Success of Sunday "breakfast flights"—an excursion in which a score or so of hungry pilots fly to a neighboring airport for breakfast—may lend encouragement to caterers now weighing the idea of establishing airport lunchrooms.

There is another side to the picture—better service should bring more transient business and, while the operator may lose money on line servicing, he would certainly build friendship, lay groundwork for overhaul jobs, equipment sales, and in some cases, line up prospective airplane sales. Courtesy and cleanliness are two features every visiting pilot will notice and appreciate—even though he doesn't get immediate service at the gas pit. Neatly painted buildings, trim ramps free of bottles, cans, and chuck holes, and clean restrooms and lounges impress any visitor.

When can the cross-country flier be sure of super-service at every airport? Not very soon, if many operators continue to balance transient traffic profit against added service costs. Cross-country flying dropped to a low ebb during the war and at the present moment the operator has no adequate blueprint of things to come. Unless abnormal conditions set in, growth of traffic during the next year should provide a pattern for operators.

On the bright side are airports where wide-awake operators are planning, not for today's few transients, but for the boom in cross-country flying sure to come when planes start rolling off production lines. They are building a reputation for tomorrow and, as they watch a mechanic guide a visitor to the gas pit, they can truthfully say, "Brother, this is costing me more than it is you—but I'm glad to have you!" ★ ★ ★

Even though the visiting pilot may not get quick service at the gas pit, he appreciates an airport that is trim and neat. Wise operators keep buildings neatly painted, windsocks in repair, and ramps free of weeds, tin cans, bottles, and chuck holes.

STATE AVIATION OFFICIALS OF THE SOUTHWEST organized last month at a meeting in Enid, Okla., to promote uniformity of aviation rules and regulations and to obtain fair representation in nationwide developments. Left to right in the photo are: Standing —William Sadler, Arkansas; Thomas McCarty, New Mexico; T. B. Herndon, Louisiana; J. R. Symcox, Oklahoma; William B. Catchings, New Mexico; A. W. Meadows, Texas; Henry Ayres, Texas, and R. T. Ross, Arkansas. Seated—Asa Burroughs, Texas; C. C. Wood, Louisiana; John Myers, Louisiana; A. W. Hays, Oklahoma; C. J. Boyd, New Mexico; Guy H. Thrash, Oklahoma; Mainard Kennerly, Oklahoma; Lloyd Catlin, Oklahoma; James Noel, Texas, and Dewey Mauk, Oklahoma.
—(Richard T. Venator Photo.)

Conroe, Texas, Airport Board Seeks Operator for Elaborate Field

Montgomery County's $1,500,000 airport, located at Conroe, Texas, and serving the Houston area, has been released by the Navy to the county commissioners court. A seven-man board, appointed by the court, expects to have the airport in operation at a very early date. The board, charged with operation and maintenance of the airport, is looking for an efficient operator. Those interested should communicate with E. V. Triplett of Conroe, chairman of the airport board.

The airport is a Class 4 field, with three 4,600 ft. hard-surfaced runways and fifty-foot hard surfaced taxiways. Located three miles northeast of Conroe, on a hard-surfaced road, the airport cost an estimated $1,500,000 and has a $52,000 field lighting system installed. Located on the premises is a 125 x 210 ft. hangar providing adequate space for shop and offices.

Non-Scheduled Aviation Leads as Revenue Source for Detroit City Airport

Detroit City Airport, reporting volume of operations more than doubled during 1945, logged a total of 196,000 take-offs and landings during the past year—an average of 535 daily. Don W. Martin, airport manager, also revealed that six major airlines carried 521,014 passengers in and out of the airport during 1945 and operated 45,743 flights during the year. Operations exceeded 2,000 flights a day on ten days during the year.

The airport made an operating profit during 1945 and reported gross revenues of $304,230.55, or an increase of 35 per cent. Revenue was derived from three sources, 44 per cent from non-scheduled operations, 32 per cent from airlines and 24 per cent from non-aeronautical activities.

For the first time in the seventeen years of operation, funds were allocated by the State of Michigan for rehabilitation work. These funds totalled $100,000.

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15 March, 1946 — Burt Building, Dallas 1, Texas

Private flying restrictions were lifted in 1945 and, when Martin's report was made, 153 personal aircraft were hangared at the airport.

The Weather Bureau, operated at Detroit airport by the U. S. Department of Commerce, operates an automatic telephone to handle weather requests. Requests for weather information averaged 34,133 calls per day and the greatest number of calls made in one day was 197,440.

4th Region State Officials Organize for Uniformity and Airports

Uniformity in regulations and fair representation in national aviation developments will be sought by the Association of Southwestern State Aeronautics Officials which was organized last month at Enid, Oklahoma, with the following state aviation directors as officers: W. D. Catchings of New Mexico, president; W. D. Hayes of Oklahoma, first vice president; R. J. Ross of Arkansas, second vice president; T. B. Herndon of Louisiana, Secretary, and Asbury W. Meadows of Texas, treasurer.

A large number of CAA officials and others attended the meeting in an advisory capacity and included George Burgess, assistant to the Assistant Secretary of Commerce for Air, Washington; Howard Rough, special consultant to the CAA Administrator, Washington; E. J. Robbins, Assistant to the Administrator for State Relations, Washington; J. M. Hunter, director, Airport Liaison and Requirements Service, Washington; L. C. Elliott, Fourth Region Administrator, Fort Worth; W. M. Berry, Assistant to the Regional Administrator for Private Flying Development, Fort Worth; M. F. Clark, superintendent, Airmen Branch, Fort Worth; G. L. Rand, superintendent, Plant and Structures Branch, Fort Worth; M. L. Cunningham, superintendent, Flight Operations Branch, Fort Worth; W. H. Brubaker, Flight Personnel and Agencies Division, Fort Worth; Harold K. Ownby, senior inspector, Tulsa; Al Young, senior inspector, Oklahoma City; S. E. Travis, superintendent, Airports Branch, Fort Worth; R. J. Dunahoe, chief, Airport Management Division, Washington; W. O. Karpenko, district airport engineer, Fort Worth, and Arthur Tulley, Massachusetts director of aviation.

Airport Executives to Meet in Chicago

Pat Moore, executive secretary of the American Association of Airport Executives, advises all members attending the annual convention in Chicago May 20 and 22 to make early hotel reservations. The meeting, which will be held at the Congress hotel, is open to all aviation affiliates, whether members or not.

House Passes Federal Airport Bill Following Joint Group's Compromise

The House of Representatives has given final approval on the proposed $500,000,000 Federal Airport bill by adopting a House and Senate conference committee report recommending federal aid to states, counties, and municipalities in airport construction. Senate approval is expected to follow shortly.

Under the bill, which if approved, will go into effect July 1, 1946, the Federal Government will bear 50 per cent of the costs of developing approved airports and 25 per cent of the cost of the land to be acquired. The $500,000,000 program will extend over a seven-year period and funds will be made available at the rate not to exceed $100,000,000 a year.

Safeguards to prevent larger cities from obtaining excessive grants are incorporated through certain instructions to the CAA Administrator. The Administrator is directed to match local funds with Federal money on a 50-50 basis where smaller Class I, II, and III airports are involved. He is given discretion as to the amount, up to 50 per cent, which may be allocated to the larger Class IV and V fields. The Administrator must submit, in the annual CAA budget, estimates of proposed Federal allocations to the larger airports.

Landing Fees for Private Fliers Hit by Friedlander

Deploring the trend toward assessment of landing fees for private pilots, John W. Friedlander, presiden of the Aeronca Aircraft Corporation declares that the personal aircraft industry and civic organizations shoul take immediate action to halt suc practices.

Maintaining that airports or landing strips now in existence are public tax supported facilities and comparabl to highways for motorists, Fried lander said landing fees will tend t turn away business. "When you star charging a fee to land, the pilot is discouraged in trying to visit the community," Friedlander emphasized, and termed the charges "a direct slap" at the light aircraft industry.

In Preparation

AIRPORT OPERATION AND MANAGEMENT

by

Charles A. Zweng, Author of Airline Transport Pilot Rating, etc.

A new and timely book (in preparation) covering every phase of equipping, stocking and operating both large and small airports. Operation expenses and sources of revenue fully covered.

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announce . . .

WHITEMAN AVIATION

Southern California Distributors

for

The New Cessna

Says Marv, "We've recently seen and flown the new Cessna 120 (and the Deluxe 140) at the Wichita Factory . . . and believe you us, that plane is a honey. Extra range, climb and speed on 85 horses . . . just meant for this big broad West. Drop us a line . . . we'll tell you all about it in a folder.

"Our first demonstrator will be on our field when you read this . . . come out and see it . . . and take a ride with us. Deliveries start in May . . . we're taking orders now."

SEE IT . . . FLY IT . . . BUY IT *NOW*!

A FEW DEALERS FRANCHISES OPEN . . . for qualified live-wire operators with facilities for demonstrating and selling.

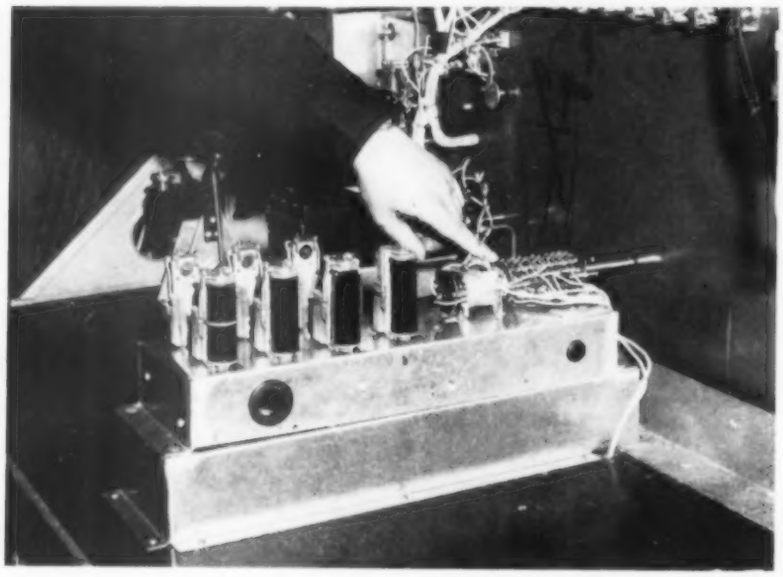
See or phone Bernie La Barr, Sales Manager

Whiteman Air Park

On San Fernando Road—6 Miles North of Burbank

P. O. Box 371, San Fernando, Calif. Phone S.F. 8501

Equipped with "automatic flight control," this C-54 Skymaster made a demonstration flight from Wright Field, Dayton, Ohio, to the All-Weather Flying Center at Columbus, Ohio. The complete flight, from take-off to landing, was made without any manual control by pilots or crew members. — (AAF Photos.)



Master Sequence Selector, "brain" behind "Push-Button" flight, delivers impulses motivating in proper sequence the mechanical functions of the aircraft.

Major Paul R. Biggers, project engineer on the development of fully automatic flight, explains push buttons and control panel. After predetermined distances, directions and altitudes are registered on this board, a push of one button sets off a chain of mechanical functions that fly the plane from take-off to landing.

FULLY automatic flight from take-off to landing is now possible with a unique device developed and test flown in a C-54 by Air Technical Service Command engineers at Wright Field, Ohio. When the pilot pushes a button marked with his destination, his work is over. The plane takes off, climbs to a predetermined altitude, finds and flies preselected directional beams, and lands at the destination. And not content with just putting the airplane on the runway, the device automatically applies brakes three seconds after the wheels have touched.

The Automatic Flight Controller, which operates in conjunction with the A-12 automatic pilot, is described as "a co-ordinated system of aircraft controls whose functions can be preselected to produce a desired point-to-point flight, including automatic take-off and landing." Originally conceived to overcome weather conditions that normally ground all planes, this "push-button" control is termed by Air Technical Service Command officials as "the most significant development in flight engineering."

Key to the operation is the nerve center or "brain" called the Master Sequence Selector. To this selector are fed variable factors such as direction distance and altitude—much as numbers are fed to a calculating machine. The selector then operates the flight controls in proper sequence.

The pilot taxies his plane into position for take-off and, with brakes locked and engine idling, he pushes the desired button. Automatically the throttles move up, the brakes are unlocked after eight seconds, and the aircraft takes off.

At 800 feet a pressure stat operates to move back the throttle, retract the wheels and raise the flaps. When cruising altitude is reached the pressure stat operates, the throttle is moved back to cruise speed, the magnetic heading control is cut in, the air log starts counting air miles, the aircraft begins flight in correct direction, and automatic altitude controls cut in.

Upon approach to destination, signaled when the air log runs down, the auto-pilot homes on the selected radio compass station. As the plane passes the cone of silence the throttle is cut back and the aircraft descends homing on an outer marker.

At 880 feet the pressure stat causes the lowering of gear and flaps, the throttle is cut and, with the plane still homing on the locator station, automatic altitude control is cut in. As the plane passes the outer beacon marker, still homing automatically, it begins a descent along a glide path signal. When the wheels touch the runway the throttles cut back, brakes are applied automatically after a delay of three seconds, and a differential braking system keeps the airplane straight down the runway until it comes to a full stop. ★ ★ ★

Club Expects Ercoupe Time to Cost $3.80 Hourly

Seven aeronautical and research engineers of the Georgia School of Technology are members of the Skyclub, Inc., at Atlanta, Georgia. An Ercoupe has been purchased and E. I. Bricker, secretary of Skyclub, said the club plans to operate the plane for $3.80 per flying hour. This cost includes gasoline, oil, routine inspections, overhaul, and hangar rental.

INAUGURATION OF DC-4 schedules across the South by Delta Air Lines was preceded by demonstration flights over various cities. Delta's first 44-passenger DC-4 is shown above being inspected by Charlie Hanst, Love Field Airport Manager, Dallas, left, and Delta's C. E. Woolman, president, and C. E. Faulk, board chairman. —(SOUTHERN FLIGHT Photo.)

Obstruction Charts for Airline Airports

Elevation of all obstructions around principal airports of the United States have been charted by the U. S. Coast and Geodetic Survey. Charts now nearing completion will cover an area within three miles of each end of each runway and will show, on a scale of one inch to a thousand feet, every obstacle extending above an approach glide angle of 40 to 1.

Charts will eventually be prepared for all airports used by scheduled air services and obstruction plans for the following fields are now available: National Airport, Washington, D. C.; Lambert, St. Louis; Long Beach Municipal; Indianapolis Municipal; Meacham, Fort Worth; International, Brownsville; Cliff Maus Municipal, Corpus Christi; and La Guardia, N. Y. Charts may be ordered at 40 cents each from Coast and Geodetic Survey, Washington 25, D. C.

Sale of surplus Vultee basic training aircraft at $975 will continue indefinitely, the War Assets Corporation has announced.

WRIGHT 1820 ENGINES

We have two Wright 1820s for sale, complete with accessories. Army Records indicate total 375 hours on one; 650 hours on the other. Only $1,000 each.

Aero Instrument Company, Municipal Airport, Houston, Texas

AIR REPORT

(Continued from page 18)

after solo)—the change being a recognition of "friendship" dual instruction by licensed pilots who are not rated instructors. However, rated instructors would still have the responsibility of passing on student ability. . . . Use of low-powered, short-range, inexpensive radio transmitters at small airports. . . . Issuance of booklets for guidance of private fliers on safety and flying club formation. . . . Design improvements in lightplanes. . . . Encouragement by closer factory supervision of uniform sales and service practices and charges.

★ ★ ★

UC-78 Prices Cut; Surplus Sales Listed

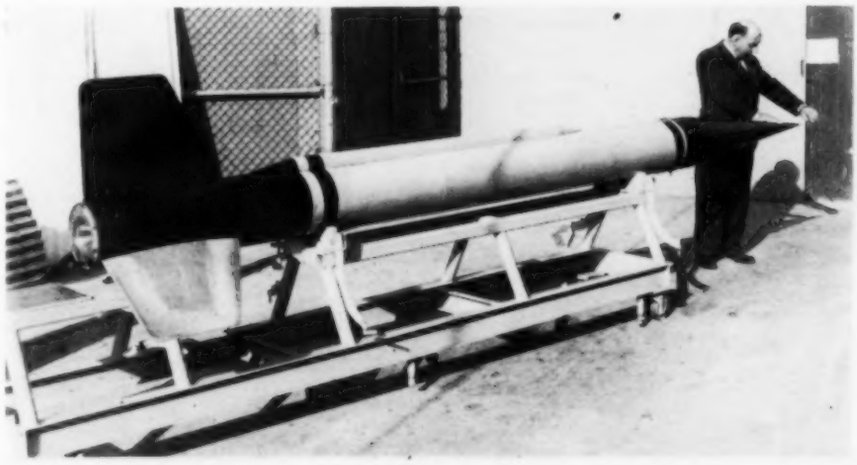
In a general adjustment of prices of individual surplus twin-engine Cessnas, the War Assets Corporation has announced an $8,500-$2,400 price on planes equipped with constant speed propellers and eligible for approval to permit a 5,700-pound gross weight. These new prices went into effect as of March 20, are based on present condition of remaining aircraft, and cover Army models AT-17, UC-78, and Navy model JRC-1. Prices for models with wood propellers are in a range of $7,000 to $1,750.

At the same time, the War Assets Corporation revealed that 37,560 surplus planes of all types are still available for sale. These types include liaison, primary, basic, advanced trainers, utility cargo, light transports, medium and heavy twin-engine transports, and four-engine transports. The following figures, released by WAC, list by types, and in sequence, the number of planes declared surplus and the number on hand: Liaison, 3,597 and 82; PT's, 9,824 and 1,707; BT's, 9,254 and 5,769; AT's (1-engine), 1,455 and 845; AT's (2-engine), 3,970 and 3,036; UC's, 517 and 63; Light transports (2-engine), 2,774 and 1,658; medium transports (2-engine), 1,215 and 418; Curtiss transports, 678 and 539; heavy transports (4-engine), 420 and 131; reconnaissance, 356 and 162; observation, 415 and 322; fighters (1-engine), 7,711 and 6,334; fighters (2-engine), 1,220 and 970; light bombers (1-engine), 3,164 and 2,591; light bombers (2-engine), 477 and 333; medium bombers (2-engine), 3,289 and 2,524; heavy bombers, 11,031 and 9,960; patrol bombers, 181 and 116.

★ ★ ★

Short Snorts

Bellanca plans to have 20 of its 150-hp., 4-place Crusairs flying before June, when a production rate of five per day is scheduled. The new Crusair has been ATC'd for a gross weight of 2,100 pounds and cruises at 150 mph. . . . First demonstrator Seabee to be delivered by Republic Aviation will probably reach the field during April for altitude landing and take-off tests in Colorado. . . . Pan American Airways has virtually tripled its order for Republic's 400-mph. Rainbow transport, boosting the quantity from six to "as many as 18." . . . Lockheed's twin-engine, tricycle Saturn feederliner will sell for more than $100,000—a considerable increase over tentative prices announced last year. . . . Strike trouble has delayed flight tests of the XB-36 at Convair's Fort Worth factory about two months. The airplane has been completely assembled—it was rolled outside recently, turned around, then rolled back inside the huge experimental building—but awaits complicated interior finishing. Its six 3,000-hp. pusher engines, outer wing panels, empennage and other major components have been installed.



EXPLORATION OF UPPER ATMOSPHERE AND IONOSPHERE is accomplished with new rockets like this Douglas Aircraft Company missile, first projectile made in U. S. to reach a height of 50 miles above the earth (improved V-2's captured in Germany have reached 100-mile altitude). Douglas-built rocket, powered by liquid combining fuel and oxidizer, may be used by Weather Bureau and by NACA to seek data on upper wind velocities, temperatures, pull of gravity and aerodynamic drag. It is 16 ft. long and 12 in. in diameter and is known as the "WAC Corporal." —(Douglas Aircraft Photo.)

Modern

TRIM, well-arranged airport salesrooms instead of musty, half-hidden showcases and cluttered counters—that is the theme of display designs developed for airplane parts distributors by two leading manufacturers. Designed primarily to introduce scientific merchandising techniques at large airport stores, the display ideas are also practical for small airport dealers.

When Air Associates, Inc., opened its new airport salesroom at Teterboro, N. J., the more than 8,000 items stocked were displayed according to plans and specifications developed by the Goodyear Tire & Rubber Co. The well-arranged display design, indicated by pictures at the left, was the result of extensive field research by the Goodyear Company in which ten large, ten medium, and fifteen small airports were studied.

Using this research as a guide, Goodyear's visual merchandising laboratories then drew up specifications to meet Air Associates' particular display problems.

Equally appropriate display ideas and store designs have been developed by Firestone Tire & Rubber Co. for dealers handling the company's line of aircraft accessories. Typical of neat, well-planned retail stores are two shown on the opposite page. Firestone has announced plans for many similar stores and has on the boards and in various stages of production "equipment that will make the Firestone dealer's store one of the leading business establishments of the community."

Merchandising problems encountered in planning the Air Associates' salesroom are those common in any business with a large variety of stock requiring proper display. Hundreds of small airplane parts, hardware items, instruments and materials had to be segregated, described, priced and made easily accessible to the customer. Stock to be displayed ranged from instruments and radio equipment to propellers, flight clothing, and aircraft dopes — an inventory totaling

Three views of a new salesroom recently installed for Air Associates, Inc., at the Bendix Airport, Teterboro, N. J. The attractive merchandising plan was prepared by the visual merchandising laboratories of the Goodyear Tire & Rubber Company after a careful study of large and small airport dealer needs. More than 8,000 items, ranging from instruments and radio equipment to propellers, flight clothing and aircraft dopes are arranged for easy visual inventory, under-the-counter restocking and customer self-service. Every item is exposed, price-tagged, and informatively explained for customer convenience.

Display

more than 8,000 items.

This varied stock had to be arranged so that inventories might be visually checked and display wares replenished from under-counter stocks.

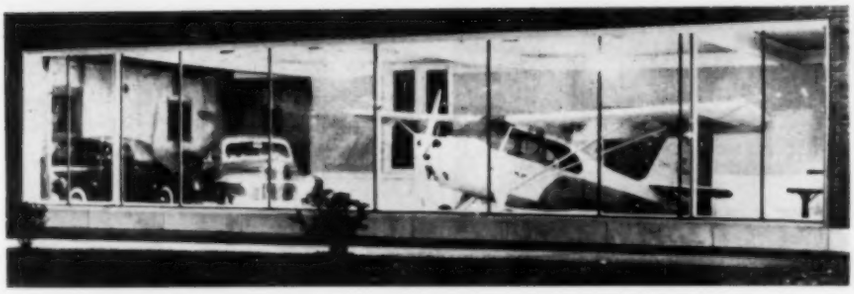
In approaching the display problem, Goodyear's study of typical airports, large and small, was supplemented by consultations with executives of sales and airport organizations, publishers, city aviation supervisors, commercial airlines, private operators, trade associations, chambers of commerce, and advertising agencies.

The study of airport sales facilities revealed that in many instances "merchandising equipment" at small airports consisted of an ancient showcase, half-hidden in a remote corner. Miscellaneous items often were stored on a few rough shelves with little regard for customer appeal or demand for the product. In a few instances salesrooms were neat and orderly; in others space was wasted and in-demand merchandise was improperly displayed. As a result of this study, the company drew up plans for low-cost display equipment to meet needs of the small airport dealer.

Effectiveness of well planned display was quickly demonstrated. Aviation products' sales actually doubled between the completion date and the formal opening of the modernized store. This was a clear indication that sound merchandising principles also pay dividends in the aviation business.

Pleased with the results, Air Associates requested Goodyear to prepare plans and specifications for its salesrooms at Chicago, Dallas, Los Angeles, Atlanta, and Kansas City.

For the airport operator, the merchandising principles developed by these leading manufacturers should provide quick visual inventories, under-counter replacement of stocks, and customer self-service. For the private flier, the innovation of modern display will mean neat, attractive aviation stores like those shown on these pages. ★ ★ ★



Automobiles share space with a new Aeronca Champion in this attractive window display on Union Avenue in Memphis, Tenn. The unique merchandising idea was conceived by the Wright Aircraft Company, dealers for both cars and planes.

Typical of the new aviation supply retail stores planned by the Firestone Tire & Rubber Co. is Rudy Van Devere's modern establishment at Hudson, Ohio. Although the store occupies only about 500 square feet, carefully-planned display left enough space for a desk and office files, making on-the-spot purchases easy for plane owners. Bottom, one of Firestone's first aviation supply stores, installed more than a year ago at Cleveland airport. Eli Ellison, the owner, is also distributor for a network of smaller airport dealers. Display cases shown here are supplied by Firestone to dealers and distributors at cost.

Charles H. Rennwald, left, and Arthur V. Binard, are president and vice president of Servair, Inc., located at the Detroit City Airport. Formerly called the Aircraft Instrument Service, Servair, Inc., operates extensive repair and maintenance service, stocks aviation equipment and supplies.

Thirteen distributors have been appointed for Schweizer gliders and additional distributors are signing contracts. The initial group of distributors are: Rankin Aviation Industries, Tulare, Calif.; Aviquipo, Inc., New York City; Lange Aviation Corp., Milwaukee, Wis.; Southeastern Air Service, Atlanta, Ga.; Jones Flying Service, Inc., Columbus, O.; Dakota Aviation Company, Huron, S. D.; Francis School of Aviation, Lansing, Mich.; Henson Flying Service, Inc., Hagerstown, Md.; Piedmont Aviation, Inc., Winston-Salem, N. C.; Northwest Aviation, Inc., Rochester, Minn., and Verhostra Aviation Sales and Parts Company, South Bend, Ind.

The new Cessna 140 on the line at Mustang Airport with J. O. (Toots) Womack, left, and N. T. Womack, Cessna distributors and operators of the Dallas, Texas, airport. A third partner, N. T. Womack, Jr., is not shown.

The Goddard Flying Service, located at Ardmore, Oklahoma, has been appointed **exclusive distributor for Skycraft airplanes, parts, and accessories** in Oklahoma and North Texas. Cameron C. West, sales manager for the Skylark Manufacturing Company, said Goddard Flying Service will handle dealer appointments in the area mentioned.

AIRCRAFT CYLINDERS REBUILT!

This top portion is an actual photograph of the wall surface after processing, showing the natural porosity. Light lines indicate tiny oil reservoirs.

TO BETTER THAN ORIGINAL STANDARDS WITH

Lubri-Chrome

Hundreds of microscopic indentations in the chrome surface retain the oil for continuous lubrication.

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Economical for small personal planes as well as commercial ships.

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Please send me your latest folder, explaining the Spar-Tan Chrome Process.

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BACK AGAIN Soon

HEATH FLOATS

Heath floats went to War and for a long time civilian light plane owners have been denied that pleasurable and profitable sea plane flying. Now Heath will soon be offering floats to civilians again but they won't be the same floats that went to War. New designs, new production techniques and materials will make your Heath floats better than ever.

Write us and get your name on the list early to receive complete details at no charge as soon as they are available.

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Aircraft Division

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Showroom . . Municipal Airport, San Antonio, Texas

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PIN THIS TO YOUR LETTERHEAD
for AIRCRAFT SUPPLY CIRCULAR

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Flightex Fabric . . Titanine Dope
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Exide Batteries . . Pilot Supplies
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The propeller with the stainless steel leading edge

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Propellers for 175 different plane models

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World's oldest mfr. of wood propellers

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Made in Grand Rapids, Center of fine woodworking.

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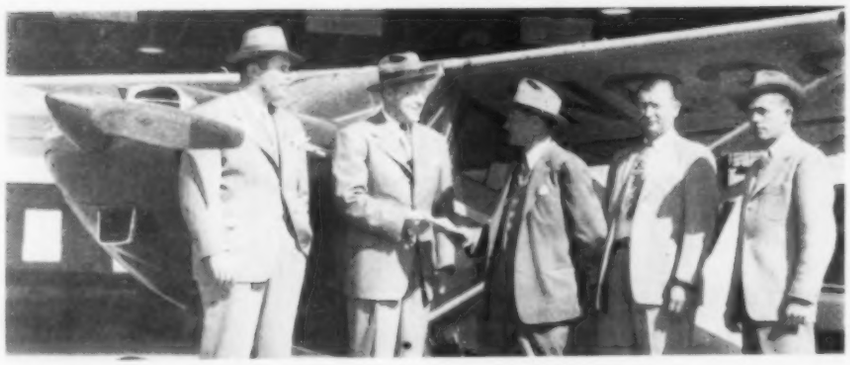


First Stinson Voyager 150 was recently delivered to Southeastern Air Service, dealers for the Atlanta, Ga., trade area. Left to right are: Millard Davis, treasurer of Southeastern; Ben T. Smith, president; W. R. Weiler, Stinson regional sales manager; Clifford J. Smith, Stinson field service representative; and J. W. Weaver, sales manager for the Southeastern company.

Gillies Aviation Corporation of Hicksville, Long Island, has been granted exclusive sales rights at Roosevelt Field, Garden City, New York. O. P. Harwood, president of the Gillies Corporation, announced that one hangar at Roosevelt Field will be devoted exclusively for aircraft display purposes.

First job undertaken by the newly-formed Lodwick Aircraft Industries, Inc., of Lakeland, Fla., was conversion of a surplus Army C-47 into an executive-type transport for W. D. Pawley, United States Ambassador to Peru. Headed by Albert I. Lodwick, who formerly operated primary flight training schools for the Army, the new concern will specialize in converting surplus aircraft for civilian use. Ambassador Pawley's plane was converted in thirty days, Lodwick revealed.

A starter and generator combination weighing nineteen pounds is now on the market and couples directly to the engine crankshaft, eliminating need for gear, chain, or belt drives. A built-in torque-limiting device protects against damage from engine backfire. Starter torque is ample for starting four-cylinder motors up to 125 hp., the manufacturer states, and is sufficient to start six-cylinder motors of even higher horsepower. Manufacturer: Electrical Engineering and Manufacturing Corporation, 4606 W. Jefferson Blvd., Los Angeles 21, Calif.

Aerial mapping equipment, long on the list of military secrets, is now available to the general public. Multiplex mapping equipment, used by the Army to make accurate contour maps, of large tracts of enemy territory, is offered for sale to private firms and government agencies by the Bausch & Lomb Optical Co., manufacturers. Multiplex methods have already been used successfully in civilian mapping projects by the U. S. Department of Interior, Department of Agriculture, and other government agencies.

NOTE:

Look to Skycraft

PRIVATE AIRPLANES FOR BETTER—SAFER AIR TRANSPORTATION

SKYLARK
AIRPLANE & PARTS CRAFTSMEN
SINCE 1934
Skylark Manufacturing Co., Inc., Venice, Calif.

Write us now for information about "Skycraft" dealer opportunities.

BENDIX AUTOMATIC Direction Finders. BC433G, complete, ready for installation, less ship wiring. Reconditioned. Only $395.00 complete. 10% deposit required all but cash advance orders. Orders filled in order received. Aero Instrument Co., Municipal Airport, Houston, Texas.

STINSON 10

Continental 80, NC26275.
Engine 275 hrs. since new
Licensed for night instrument
Price $3,000.00 Send $100.00 to hold

JAMES CARD
8346 Travelair St. Houston 12, Texas

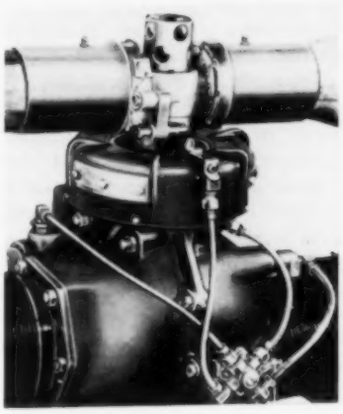
Extreme simplicity of installation, operation, and maintenance are features of the Bassett Model MC6 aircraft transmitter-receiver. Designed for either dry battery operation or for 6 or 12 volt storage battery operation, unit weighs three and one-half pounds, fits standard size panel opening.

A booklet of suggestions on radiotelephone procedure, designed to aid the pilot using a two-way radio set for the first time, has been prepared by the Ranger Aircraft Radio division. In covering voice procedure, the booklet discusses radio discipline, the phonetic alphabet, use of numerals, statements of time, procedure phrases, and control tower procedure. Function of radio ranges is also discussed briefly and the Morse code is listed to aid pilots in recognizing identification signals. Copies may be obtained from dealers or from the Ranger Aircraft Radio division of the Electronic Specialty Company, 3456 Glendale Blvd., Los Angeles 26, Calif.

General Electric has announced its G-E Personal Plane Radio, a compact 12-tube transmitter and receiver that weighs 12 pounds complete with power supply. The unit operates directly from a 12-volt airplane battery. Transmitter: 3105 kc., class-B modulator, circuits designed to use standard receiving tubes, uses fixed or trailing antenna. Receiver: Covers 200 to 420 kc., 550 to 1500 kc.; designed for use with loop, fixed-wire, or trailing antenna.

For the executive-type plane, the Collins Radio Company is producing a ten-channel Autotune receiver, a five-channel VHF transmitter, and a 3105-6210 transmitter. Remote control is provided for each unit. Receiver: Model 51k-1, 20 lbs., 10 channels, Autotune control, 2-second frequency shift, automatic squelch. VHF transmitter: Model 17K-1, five frequency, less than 20 lbs., crystal-controlled transmitter covers 122-132 mc. band. Model 17E-2 transmitter: 44 lbs., all circuits pretuned, 3105-6210 kc.

CONTINENTAL CONTROLLABLE PITCH PROPS FOR 85-185 HP. ENGINES



A controllable pitch propeller is now being manufactured by the Continental Aviation and Engineering Corporation and first shipments on an 85-hp. unit went to Globe Aircraft Corp.

A. B. Willi, executive vice president, revealed that Continental is also working on controllable pitch propellers for 125 and 185 hp. engines. "It is a very logical procedure for Continental to build controllable-pitch propellers because the propeller forms an integral part of the aircraft power plant," Willi declared, and explained the best design of a propeller can be arrived at when the propeller and engine designs are studied as a unit. "By supplying a propeller as a complementary part to its engines, Continental will be pioneering in the small controllable propeller field in the same manner in which it pioneered the engine for the private airplane," Willi added.

Enumerating specific advantages, Willi said the controllable-pitch propeller will shorten take-off runs by 22 per cent, improve rate of climb 27 per cent, take advantage of engine take-off rating, increase ceiling, improve fuel economy, and provide better cruising performance.

Design features of Continental's propeller include blade bearings independent of blade ferrule, simple, fool-proof, push-pull control and a closed hydraulic system.

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FORMERLY—AIRCRAFT INSTRUMENT SERVICE

Distributors of Fine Aviation Products

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Go by air—save time—low fare

TEXAS AIR TRANSPORT, INC.

3416 Love Field Drive, Dallas, Texas

PRIVATE TICKET $100

(Continued from page 34)

experience for all. If the field is situated near a service station, all the better.

There are many pilots returning from the war, eager to keep their hands in at flying and hoping to make the profession pay off in civilian life. Licensed instructors are usually available in almost any community. They should welcome a minimum income of fifty dollars a week for doing the work they like best. Instructors should be paid by the hour, both for dual and for solo on the part of the club members.

Members of the club will require approximately forty hours of flying experience, dual and solo, before they can pass their CAA flight tests, so an instructor can be sure of a steady job. As members obtain their licenses and leave the club, they may sell their memberships for $200 to new members on the waiting lists. These waiting lists may be expanded by publicity and advertising.

Keep 'Em Flying

To obtain forty hours of flying within the thirty-day period, the student must arrange to fly at least one hour and twenty minutes per day. On some days he may fly two full hour periods to make up for days lost to weather.

There are always some members in a flying club who will not be in a hurry to obtain their licenses. The more ambitious may take advantage of this item and use the flying time others neglect. This will make it possible for numbers to obtain their licenses within the shortest period of time. Some have already accomplished this within thirty flying days.

In the summertime, each day will allow at least ten hours of daylight. A club plane may be kept busy as much as eight hours or more. A club of twelve, allowing forty hours for each member, will require 480 hours. If we consider the test flights and other incidental hops, a total of about 500 hours will be put on the plane. If we could have eight hours a day for flying, the entire group should be ready for their licenses within sixty days. This would be too much to ask for. After all, there is such a thing as weather and 100-hour checks and repairs to be considered. Three months should see the first group through and a second group working for their tickets.

The instructor should be in complete charge of operations and it is he who should schedule the student flights. This will eliminate the confliction that arises when two or more students want to use the airplane at the same time. No schedules can be alike in this respect. They will depend on local setups and must be worked out to the best advantage of all. Regular meetings should be held and attended. Members thus can study the Civil Air Regulations and any ground school instruction that is available.

Penalties for missing classes or flight schedules may be paid in washing airplanes or doing other duties in conjunction with the club. If the club is made up of a versatile group, it will be most convenient for all concerned. It is imperative that all be of a congenial nature, ready to make minor sacrifices for the good of all. Unless the club is based at a regular airport, there are bound to be inconveniences. These must be accepted. Each member must expect to crank his own airplane, fill gas tanks and tie down airplanes. At an airport, his cost of instruction would be considerably increased when he had to pay for such service.

Club Costs Analyzed

Here are the approximate costs of a flying club, covering a sixty-day period, during which the greater number of original members may obtain their private licenses.

INCOME	
Initiation fees	$2,400
Dues for two months (at $2 per month)	48
Fifteen hours dual for each member at $3	540
Twenty-five hours solo for each member at $2.20	660
Total	$3,648

EXPENDITURES	
Initial cost of airplane, insurance, etc.	$2,000
Approximate salary for pilot-instructor	500
Field rental	30
Fuel and oil at approximately $1 per hour	500
Maintenance, repairs, incidentals and treasury	618
Total	$3,648

In some cases, the expenses will not run higher, or much higher, if the airplane and operations may be based at an established airport. Many operators do not look on a club as competition since the operator can sell the airplane in the first place, provide work for an instructor and provide maintenance and service, all at a profit. When a plane is based at an open field, fuel and oil may be obtained at a lower rate and shelter costs will be reduced. Still, it is better if the club can have a headquarters in a regular aviation atmosphere where service is better and more reliable, even though some extra cost is to be considered.

By the method we suggest, each student can save materially on his initial flight training cost. As soon as he obtains his ticket, he may sell his membership to make way for a new student or, if he prefers, he may retain his club membership and rent a club plane when it is available at the regular rate per hour. This is not so good for the club. It is better to keep up an influx of new members and let the graduates rent aircraft elsewhere.

This plan provides all of the dual and solo training necessary to obtain a private license for the average student. Some, of course, may be slower in learning and require more training. With all of this, the average club should be able to put a member through for his license at a cost slightly under $100.

Flying clubs have flourished in the Midwest, and in Kansas City there

Typical of the trend toward flying clubs is the Wings and Goggles Club of Phoenix Junior College, Phoenix, Arizona. From left to right, Instructor Don Stone, Allen Rand, Ray Mock, Bob Dana, Marcelene Seeman, Laurie Backes, Roy Parks, Ozzie Langston, (president), and Arthur Harris. Seated next to the airplane are Francis Nixon and Gus Engstrom.

are several which operate at a profit. They have been in operation from three to seven years and several of them have been based at regular airports where the best of service is provided. Most of these clubs have exacted higher initiation dues, fees per month and higher flying costs than the figures used in this article. As a result, they have more money in their treasuries and are in position to buy new planes from time to time. All are well administered and carefully planned in advance of organization. Several have more than one airplane operating regularly. Both men and women are members of these clubs and, when a member obtains a license, he frequently aids the regular instructor by flying with unlicensed students. This is not always a good practice but an instructor can easily tell who is capable of rendering such a service.

It should not be difficult to convince an airport operator of the value of having flying clubs operating from his field. It will be a continuous source of profit for the airport.

Who may organize a flying club? Any airminded individual who can gather together a group of other enthusiasts in the interest of low-cost flying. A course that might cost as much as $400 or $500 can be obtained by the club for a much lower cost.

How may prospective members be obtained? By publicity, advertising or personal contact. Almost any air enthusiast knows at least a dozen other persons who might want to learn to fly if the price is satisfactory.

How do you get such a group together? Send out letters or make telephone calls. Assemble the potential members at any convenient place or time. Tell them about your plans in advance so they will come prepared to do business. No delays should be tolerated.

What should be done at the first meeting? Adopt a charter and the by-laws, collect initiation fees and dues. Prepare an announcement for the press. If possible, have an experienced airman present to assist in plans.

What to do next? Arrange to buy your airplane and contract for an operating base. Secure an instructor and arrange for maintenance, repairs and fueling. All of this should be done under the guidance of a seasoned pilot or aircraft service operator who knows the game.

Arrange a schedule and stick to it. The more the members will concentrate on the program, the earlier they will have their tickets. ★ ★ ★

Airmen's Calendar

April 22-24—National Conference on Women in Aviation, Stephens College, Columbia, Mo.

April 22-27—National Plastics Exposition, Grand Central Palace, New York City.

April 27—Texas Private Fliers Association Meet at Opening of New Airport at Monterrey, Mexico.

April 28-30—National Association of State Aviation Officials, Conferences with CAA and CAB, Statler Hotel, Washington, D. C.

May 6-7—National Aircraft Standards Committee, Eleventh National Meeting, Lexington Hotel, New York City.

May 13-14—New York State Aviation Council Semi-Annual Meeting, Rye, New York.

May 20-22—American Association of Airport Executives Annual Meeting, Chicago.

May 21—PICAO Assembly Begins Three-Week Meeting, Montreal.

May 24—Kansas Farmers' Flying Club Convention and Exhibit, Hutchinson, Kansas.

July 19-20—National Aeronautic Association National Convention, Omaha, Nebraska.

SAFETY AFTER SOLO

(Continued from page 37)

5. Wires often span rivers and small lakes.
6. Wires often cross open fields as well as parallel roads.

Disaster in Traffic Pattern

File No. 337-45—You can't stop, you can't listen, but you sure can *look* for all you're worth. In fact, you won't be worth very much if you don't keep constantly on the alert for other planes. Students W and J of Corpus Christi, Texas, learned this the hard way. They were both practicing take-offs and landings. Miss J took off first. As she turned into the base leg of the traffic pattern, she received the green light from the tower signifying that she was cleared to land. She continued and started her final turn for approach. At about this time Student W turned from the down wind to the base leg and was also given a green light. The aircraft were then about 2,000 feet apart flying nearly at right angles. Recognizing the possibility of collision, the control tower operator gave Student W a red light, which he later stated he did not see. Both aircraft continued on their respective courses and collided at an altitude of about 100 feet, approximately 600 feet from the approach end of the runway. The left landing wheel of Student W's plane struck the top of the left wing of the other. His plane fell off to the left and crashed to the ground while the other executed an uncontrolled loop and then pancaked in.

1. Develop an inherent habit of looking continuously around.
2. Be visually alert at all times.
3. When on the final approach leg, check to see that no one is "cutting in."

Student Accident Causes

Let's examine all of the serious and fatal accidents for a year and see what percentage of them occurred to student pilots and what were the important elements in those accidents. Approximately half of all airplane accidents occurred in the student training category and roughly about one-half of those occurred during landing practice. The large majority of these accidents, however, are in the minor or no injury group. Serious and fatal accidents usually occur to students when they are engaged in irregular types of flying, as shown in the following study of fifty serious and fatal injury student accidents:

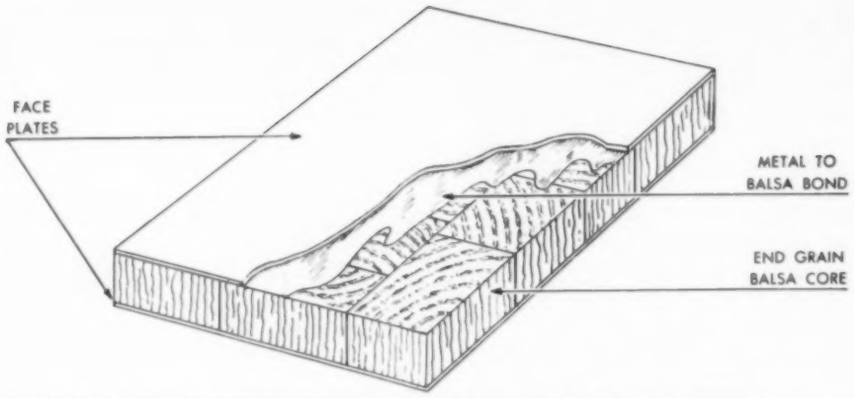
Element	Percentage
Left Practice Area	72%
Low Flying	60%
Stalls*	56%
Diving	32%
Circling Houses	22%
Previous Reckless Flying	20%
Collision with Wires	18%
Off Airport Landings	16%
Carrying Passengers	16%
Acrobatics	10%

*In the 28 stall accidents, the stalls occurred as follows: Climbing 18 per cent, gliding 22 per cent, climbing turn 24 per cent, turning 36 per cent.

Out of 225 serious and fatal accidents surveyed (approximately all of those on which Safety Bureau Reports were released between June, 1944, and June, 1945) sixty-five occurred to student pilots. Of these, fifteen occurred to pilots having over fifty hours of solo time, some having as much as 300 hours. Assuming that the first fifty hours of solo is primarily a training period, these fifteen cases were not included in the student training group analyzed above.

Thirty-six, or 72 per cent, of the fifty ventured away from their assigned practice areas. If these student pilots had stayed in their practice areas they probably would still be flying. Thirty pilots, or 83 per cent of those who left their practice areas, yielded to the urge to fly low.

All this adds up to one thing. Whether or not you have an accident between now and the time you get your private depends mostly upon your decision to follow closely your instructor's orders. Stay in your practice area except for assigned cross-country flights. Control that urge to fly low over your home. Avoid those sudden impulses to break routine. ★ ★ ★



METALITE, A NEW LIGHTWEIGHT STRUCTURAL MATERIAL FOR AIRCRAFT, has been developed by Chance Vought engineers to minimize wrinkling and parasite drag at high speeds—two factors which reduce efficiency of laminar flow airfoils. Metalite consists of thin sheets of high strength aluminum alloy, separated by a thick, low density core of balsa wood and bonded together to form a single light rigid unit. The grain direction of the balsa core is set perpendicular to the metal faces. Engineers predict use of Metalite in many fields other than aviation.

8 Boeing Stratocruisers Ordered by American

Purchase of eight Boeing Stratocruisers at more than $10,000,000 has been announced by American Airlines, which will operate the large planes—peacetime passenger version of the B-29—on transatlantic schedules. Directors of American Airlines have authorized the raising of approximately $80,000,000, through sale of debentures and convertible preferred stock, for new equipment purchases and general expansion.

Boeing Airplane Company has also contracted to deliver four of the 67½-ton Stratocruisers to Sila, Swedish Inter-Continental Airlines, for more than $6,000,000. Boeing is now building twenty Stratocruisers for Pan American World Airways on a contract involving over $25,000,000.

Full Hearing in May on Mitchell Measure

The Mitchell Bill, suggested by many leading aircraft manufacturers and written by Senator Hugh B. Mitchell, has been promised a full-scale hearing in early May. The bill proposes to set up a nine-member National Air Policy Board similar to the Morrow Board of 1925. Need for the bill was originally suggested by aircraft manufacturers when they testified at Washington and West Coast hearings conducted by the Mead subcommittee on aircraft and light metals.

East coast manufacturers endorsed general objectives of the bill at a recent New York meeting and expressed particular approval regarding the proposed air policy board.

DETACHABLE BELLY CARGO CONTAINER that fits snugly to the underside of the fuselage is described by Lockheed Aircraft Corp. as increasing the payload of the Constellation by four tons for flights up to 1,500 miles. Called "Speedpak," the novel container is equipped with four wheels and is raised or lowered by a built-in electric hoist. It is 33 feet long, 7 feet wide and 3 feet deep and weighs 1,700 lbs. empty, and Lockheed says it has no adverse effect on the airplane's flight characteristics. TWA is scheduled to begin use of first Speedpak soon on its Trans-World Airline Constellations.
—(Lockheed Photos.)

"Flying Mailcar" Version of C-82 Announced

Fairchild Aircraft Division of Fairchild Engine & Airplane Corp. has designed interior facilities for the C-82 Packet transport making it a "flying mailcar" with a sorting table, letter racks, chutes, registered mail locked drawers and bag racks. Richard S. Boutelle, vice president and general manager, reported favorable reaction by Post Office officials in line with their recommendations for a five-cent airmail postage rate.

Douglas Sales

A net income of $8,955,754 after taxes has been reported by Douglas Aircraft Company for 1945, with sales totalling $744,682,664 for the twelve-month period ended November 30, 1945. Backlog of orders on hand included $113,000,000 in government contracts and $103,000,000 in commercial orders. Douglas sales for 1945 were 30 per cent below 1944 sales. The company's war production sales totalled over $3,500,000,000.

Chance Vought Adding to Engineering Staff

Chance Vought Aircraft division, United Aircraft Corp., Stratford, Conn., has begun an intensive campaign to enlarge the company's engineering staff. Company representatives are visiting colleges and universities in many sections of the country to interview men who will graduate this spring. Ex-servicemen who are graduate engineers are sought after in particular.

NACA Facilities for Personal Plane Progress

The National Advisory Committee for Aeronautics and members of the Personal Aircraft Council have agreed on close coordination of research activities affecting the development of personal aircraft, according to W. T. Piper, chairman of the Council.

Three New Hangars Added to Lockheed Expansion

Ground has been broken for three new hangars at Lockheed Aircraft Service, Burbank, Calif., completing the company's $950,000 expansion program. Altogether there will be five hangars, totaling 160,000 square feet of floor space, which will make the company one of the most completely equipped aircraft bases in the world. It will be extended to all makes of aircraft. Emphasis will be directed toward overhaul of aircraft in the 100,000 pound gross weight class. Total hangar, office and shop space will be 267,255 square feet, and inventory is placed at $11,500,000.

Bertrandias Heads Douglas Aircraft's Foreign Sales

Douglas Aircraft Company has reorganized its sales department in which the Contract Administration division which handled all sales functions during the war was dissolved and the following appointments were made: Victor E. Bertrandias, director of foreign sales; Karl P. Grube, director of contract requirements; Nat Paschall, director of domestic commercial sales, and John M. Rogers, director of domestic military sales.

REPUBLIC XP-84 THUNDERJET is undergoing Army Air Forces tests after completing initial test flights last month at Muroc, Calif. General Electric axial flow TG-180 jet engine obtains air through nose scoop. XP-84 is in the 600-mph. performance category of the Lockheed P-80.

—(Republic Aviation Photo.)

Globe Aircraft Financing Project is Effected

An issue of 150,000 shares of 5½ cumulative convertible preferred stock, par $10, authorized by directors and stockholders of Globe Aircraft Corporation, has been made effective by the SEC. Globe will use the proceeds from the stock as follows: Reorganization and other expenses, $34,000; payment of a loan to the RFC, $960,000; purchase of a factory building and equipment now owned by the Defense Plant Corp., $250,000; working capital, $31,000.

PERSONAL PLANE MANUFACTURERS AS SKETCHED BY JOHN M. SITTON for "Radio Sketchbook of Personal Aviation," released by the Radio Division of Bendix Aviation Corporation, are: 1. Walter Beech, Beech Aircraft Corporation. 2. A. Francis Arcier, Waco Aircraft Company. 3. Leroy R. Grumman, Grumman Aircraft Engineering Corporation. 4. Nash Rush, Taylorcraft Aviation Division, Detroit Air-Craft Products, Inc. 5. Alfred Marchev, Republic Aviation Corporation. 6. John Friedlander, Aeronca Aircraft Corporation. 7. W. Wallace Kellett, Kellett Aircraft Corporation. 8. Fred E. Weick, Engineering and Research Corporation. 9. Albert W. Mooney, Culver Aircraft Corporation. 10. Richard S. Boutelle, Fairchild Aircraft Division. 11. Leopold H. P. Klotz, Luscombe Airplane Corporation. 12. William T. Piper, Piper Aircraft Corporation. 13. Dwane L. Wallace, Cessna Aircraft Company. 14. Maxwell W. Balfour, Spartan Aircraft Company. 15. John Kennedy, Globe Aircraft Corporation.

Two-Cycle Engines for Lightplanes Described

Reporting progress in developing small engines capable of producing great power at low cost for private planes, three experts from McCulloch Aviation, Inc., have described a new four-cylinder, horizontal-opposed, crankcase scavenging two-cycle engine that produces more than 60 hp., weighs only 73 lbs., and occupies space 24 in. wide and 26½ in. long. The McCulloch experts, John L. Ryde, John W. Oehrli, and V. J. Jandasek, spoke at the SAE National Aeronautical meeting in New York, April 4, and revealed proposed development of a three-cylinder air-cooled power plant producing approximately 100 hp., weighing about 150 lbs., and occupying 21 by 32 inch space. With the exception of spark plugs, only one wrench would be needed to assemble the entire engine.

Walther Prokosch of Eastern Air Lines recommended further development of cold-cathode strip lighting and use of radiant wall heating in commercial planes, also magazine racks, drinking water, radio and loud speaker systems, and more convenient accommodations for those afflicted with air sickness. Prokosch drew the line at installation of motion picture equipment. "There would be no retreat for the passenger who just did not want to see a movie," he explained.

Industry Honors U. S. Military Air Attaches

Sixteen U. S. military air attaches and officers of military air missions were recently honored at a luncheon given by the export Committee of the Aircraft Industries Association in Washington, D. C. Seven Washington AAF supervising officers and the export representatives of sixteen aircraft manufacturers also attended the luncheon. Irving Taylor, assistant to the president of the Douglas Aircraft Company, presided at the meeting. The officers honored were about to leave for their posts in thirteen foreign countries.

Sixteen Airlines Order New Pioneer Auto Pilot

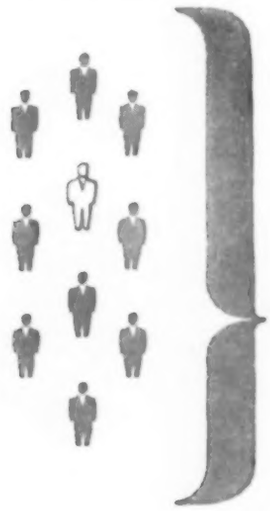
Pioneer-Eclipse division of Bendix Aviation Corporation has started production on a commercial version of the A-10 automatic pilot. The new version, the PB-10, is different from the military model essentially in that it is more packaged for quick change on the line, and in attitude control. The controller has been redesigned with a pistol-handle for ease of airline use. It conforms to CAA regulations. On the handle is a trigger to cut the flux gate when necessary. The automatic pilot is built into the panel of the plane, and is transferable to any type of plane with one to six engines. It is a full-flying pilot, as opposed to the old type of beam only, and the pilot follows a magnetic compass rather than a gyro compass. If any irregularity occurs in the mechanics of the plane, the automatic pilot is disengaged and the plane flies manually. The unit weighs about 100 lbs., and is 9⅝" high, 15$\frac{11}{16}$" long and 19$\frac{11}{16}$" wide.

The PB-10 automatic pilot, which costs $4,000, has been ordered by sixteen domestic and foreign airlines.

PERSONALS

WILLARD S. PAUL has been promoted to the position of production manager of Beech Aircraft Corporation. . . . CLINTON E. STRYKER of Milwaukee, Wis., has been elected president and general manager of Adel Precision Products Corp., of Burbank, Calif. . . . Douglas Aircraft Company directors recently elected VICTOR E. BERTRANDIAS, director of foreign sales, and NAT PASCHALL, director of domestic commercial sales, as vice presidents. . . . RONALD S. GALL, with sixteen years of background in aviation publicity and public relations, has been named director of public relations for National Airlines, Inc. . . . F. TRUBEE DAVISON, a Navy flier in World War I and chief of an AAF headquarters staff division for most of World War II, with the rank of brigadier general, has been elected president of the Air Power League, succeeding Charles E. Wilson. Davison is president of the American Museum of Natural History.

W. ART MANKEY has been appointed assistant to the president of Ryan Aeronautical Company. For thirty years an aircraft engineer, he was chief of production design for Glenn L. Martin Co. and engineering manager of Bell Aircraft Co., during World War II. . . . Lockheed Aircraft Corp. has named JOHN I. WAGNER, veteran Latin American airline pilot and ex-Navy plane commander, as Latin American sales representative. . . . GENE GACH, author recently released from the Army's counter-intelligence corps, has joined Lockheed's sales promotion staff. . . . HARLAN M. ELLIS has resigned as sales manager of Hamilton Standard Propellers division, United Aircraft Corp. . . . GEORGE L. ESTES, JR., becomes assistant sales manager to direct work with the airlines and aircraft manufacturers. . . . C. W. FRANCE, formerly vice president of Curtiss-Wright Corp., has been elected vice president in charge of maintenance and engineering for Eastern Air Lines, with headquarters in Miami. . . . RICHARD H. DEPEW, JR., has resigned as chief of aircraft sales, Office of Aircraft Disposal, War Assets Administration, to return to the aviation industry as vice president in charge of operations for Ludington-Griswold, Inc., Saybrook, Conn. He was succeeded by RAYMOND W. PHELPS.



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NEW PRODUCTS

Smoke Detector

A device for detection of smoke in airplane cargo space by photoelectric means has been developed by Walter Kidde & Company, Inc., Belleville, N. J. The photoelectric cell functions on slight changes in illumination as caused by the presence of smoke. The instrument is sensitive, having a light directed on the photoelectric cell, and either visual or audible alarms are set off by a disturbance of the clear air between the light and the cell. To compensate for changes in light source, a second photoelectric cell is needed and is connected to the detecting cell in a balancing circuit, relative to the response relay. The Kidde detector is lightweight, weighing 3.3 pounds, exclusive of any external wiring and the alarms. It is invaluable in catching any fires in cargo planes in initial stages.

Constant Pressure Fuel Pumps

Chandler-Hill Corporation, Detroit, has developed a revolutionary twin-valve pump which delivers a constant flow of fuel at almost constant pressure and volume for airplanes. The pumps were used in military planes, and are now being tested by commercial air lines. The unit assures accurate control under all conditions. The two valves balance each other, working on a common guide pin, and make possible pressure regulation. Dualvalve aircraft fuel pumps are manufactured in two models with capacities of 830 and 1,600 gallons per hour at 2,500 rpm.

New Sealing Compound

The Parker Research and Special Products division, Parker Appliance Company, Cleveland, has developed a general-purpose thread and gasket sealing compound, known as Uniseal. It is proof against most elements, and virtually insoluble in liquids. It comes in a paste form, and contains no free metallic particles which might set up corrosion. The paste blends readily with cut gasket material. The compound is soluble in alcohol and carbon tetrachloride, simplifying any cleanup which might be necessary. Uniseal is available in tubes and containers ranging from 8 ounces to 5 gallons.

Electric Hand Tractor

The Transtractor, a new electric-propelled hand tractor, featuring advantages of the electric hand truck and the conventional warehouse tractor, is being manufactured by Automatic Transportation Company, Chicago, a division of the Yale and Towne Manufacturing Company. The Transtractor will pull or push a 6,000-pound trailer load all day, or 20,000 pounds intermittently. Finger-tip control facilitates handling. The hand tractor may tow a number of trailers in tandem, and is very maneuverable for close-quarter operation. It has forward and reverse drive controls, push-button operated; two forward and two reverse speeds are controlled by the vertical angle of the guide handle.

Flexible Duct Is Corrugated

A new type of flexible, corrugated duct, made of fabric, rubber and plastics, is being manufactured by the United States Rubber Company to convey air, dust, fumes and abrasive substances in industrial plants. The ducts, called Multi-Flex, are light and durable, and can be twisted and turned around obstructions. They will withstand temperatures up to 350 degrees F. and as low as 70 degrees below zero, F. The ducts are made out of glass and asbestos fabrics impregnated with synthetic rubber and plastics. Flexibility is obtained by means of corrugations. Designs have been made for heating and ventilating automobiles, airplanes, and other vehicles and for carrying flour, sugar, chemicals and similar products in manufacturing plants.

Filter-Lube for Tools

CCA Products Engineering, Glendale, California, is manufacturing a CCA Filter-lube, a compact pneumatic filtering unit combined with a precision lubricator. The primary use of the unit is for installation as close as possible to the equipment it is intended to service—air cylinders, vises, chucks and similar equipment. It is designed to prolong the life of all types of pneumatic equipment, and is available in ¼", ⅜" and 1-2" standard pipe sizes. It features a full view, lightweight, transparent plastic lubricator oil reservoir to enable the operator to see at a glance the quantity of oil in the element. A needle valve oil regulator permits the correct amount of oil to mix with filtered operating air. The device is fully automatic in operation.

Lightweight Fairlead

The Double T Fairlead Company, Hawthorne, California, is manufacturing a new simplified fairlead for electrical and other types of conduit and are designed to support tubing of the same size or any combination of sizes. Any individual line or conduit may be removed without disturbance to the other lines in the series, when used on gang fairleads. The device has only two parts—the bracket and the grommet. It is lightweight and is easily installed by hand. The weight results in greater aircraft payload.

New Tool for Tube Bending

The Glenn L. Martin Company, Baltimore, is developing a new hand-bending tool, permitting all kinds of small tubing to be curved to any desired angle. The device has a sturdy steel base which may be used in a vise or clamped onto a bench; a revolving radius rod; a stop block grooved to hold the tubing; and a small movable radius block which guides the tubing around a bend roll centered on top of the base. The tubing is inserted in the groove of the stop block and the movable block is pulled around the bend roll until the measuring point is directly opposite the mark of the angle desired in the bend roll.

Brazing Flux for Aluminum

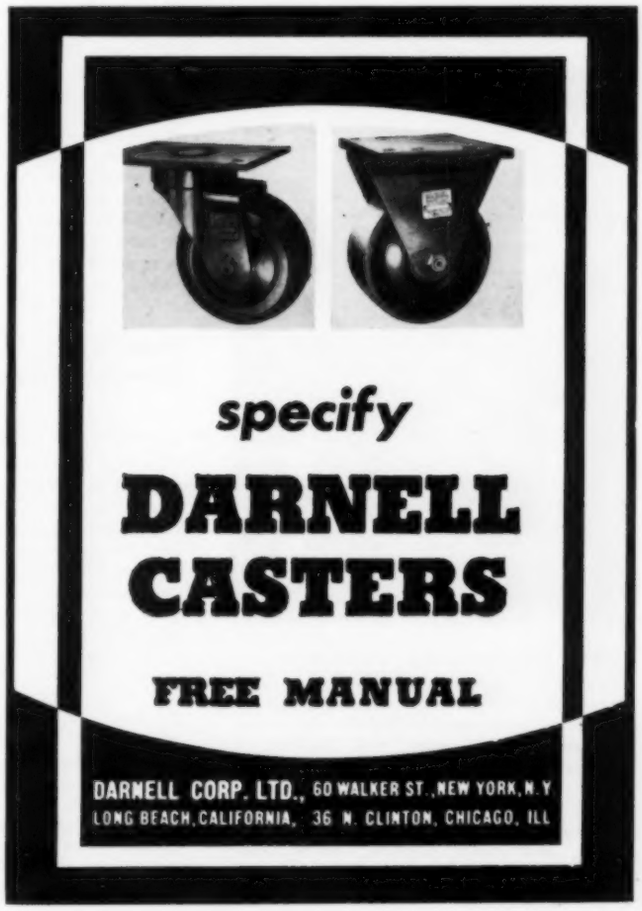
A new flux for efficient brazing of aluminum with X716 wire has just been introduced by A K. Mauk, 7501 Hamilton Avenue, Pittsburgh 8, Pennsylvania. Designated as "Flo-Well" No. 2, it is equally useful in either furnace brazing or torch brazing aluminum. It can be applied by inexperienced workmen and will not solidify or deteriorate.

"Flo-Well" and X716 may be employed alone in brazing 61S and, in combination with hydrogen and oxygen, may be used in brazing 2S, 3S, 24S and 52S. The X716 wire can be obtained wherever aluminum is sold, or direct from A. K. Mauk.

Free samples of both "Flo-Well" No. 2 and wire X716, together with complete directions for use, will be forwarded by the manufacturer upon request.

Reusable Hose Couplings

Resistoflex Corporation, Bellville, N. J., has announced a complete line of patented attachable-detachable reusable metal couplings, which make it possible to hand-assemble flexible hose lines. Combined with any flexible hose, these reusable couplings are easily and quickly attached or detached and can be used over again, with end-wrench assembly done on the spot. The coupling nut threads onto the hose, with coupling shell compressing the hose end into a safety-seal gasket. With keep-true threads, the fitting has a long, even grip on the hose, the double bell shape of nut allowing the hose to flex without cutting. The heavy body of the fitting prevents crushing or distorting of the line. Unusually large square wrench surfaces make assembly operation simple and quick.



Two Feeder Certificates Awarded by CAB in Rocky Mountain Case

Two new feeder airlines were recently authorized by the CAA in an opinion on the Rocky Mountain Case. Three-year experimental certificates in the Rocky Mountain area were issued to Ray Wilson, Inc., and Summit Airways, Inc.

Five routes authorized for the Wilson line will permit service between Salt Lake City and Grand Junction, Colo.; Grand Junction and Albuquerque; Denver and Grand Junction; and between Denver and Cortez, Colo. Summit Airways' certificate covers routes between Billings, Mont., and Denver; between Billings and Salt Lake City; and between Salt Lake City and Denver, all via various intermediate points.

The same opinion authorized a series of new intermediate points on Western Air Lines Route 13 and Route 19; an extension of Inland Airlines Route 35 from Rapid City, S. D., to Sheridan, Wyo.; and amendment of Inland's certificate for routes 28 and 35 to extend beyond Cheyenne to the terminal point, Denver.

FIRST COMMERCIAL LICENSE for a helicopter has gone to Bell Aircraft Corporation's two-place Model 47, reportedly priced at about $25,000 for deliveries beginning this summer. Five hundred of the craft are now in production. Left to right are Arthur M. Young, designer; CAA Inspector R. H. Guerard; D. G. Forman, Bell's helicopter division manager, and Floyd Carlson, Bell's chief helicopter test pilot.
—(Bell Aircraft Photo.)

1,850 Lightplanes Manufactured Last Month; Some Factories Still Withholding Production Reports

SOUTHERN FLIGHT's monthly survey of lightplane production in the United States shows four companies produced 1,059 aircraft during the thirty-day period ended March 25 and expect to produce 1,541 aircraft during the thirty-day period ending April 25. Five manufacturers whose actual production was unreported at press time probably produced a total of 800 aircraft last month, indicating a grand total of approximately 1,850 lightplanes manufactured last month.

Figures were factory reported as follows:

Manufacturer	Month Ended March 25	Scheduled for Month Ending April 25
Piper	570	750
Taylorcraft	310	525
Luscombe	144	200
Globe	34	66
Totals	1,058	1,541

Note: Ercoupe, Aeronca, Cessna, Stinson and Culver unreported but probably produced total of 800 planes last month.

Piper production included eleven 100-hp. Super Cruisers and production of 559 J3 Cub Specials was 75 planes below schedule, the loss being due to delays in switching over to metal spars.

Aeronca declined to release production figures because of company policy; Engineering & Research Corp. is withholding Ercoupe figures until "such time as labor conditions in other plants permit us to foresee an uninterrupted flow of raw materials so that we can plan production accurately"; Culver is awaiting imminently expected completion of CAA licensing; Stinson is delayed by tooling and other problems attendant to production of its new 4-place Voyager 150; Cessna's failure to report was unexplained. Republic was due to begin volume production of the Seabee during April.

Army Plans 2,800 Planes for Air Reserve, 2,600 for National Guard

Emphasizing that national defense rests fundamentally on air power, Lt. Gen. Ira C. Eaker recently outlined Army plans for an Air Force of 1,500,000 officers and men capable of preserving the peace as a "force-in-being." In addition to the regular Air Force establishment, Eaker said this force would include 27 groups of the National Guard having 2,600 aircraft and composed of 72 fighter squadrons and 12 light bombardment squadrons placed under 12 wing headquarters on 79 National Guard bases, with at least one in each state. Equipment to be provided includes 1,000 P-51's, 800 P-47's, and 196 A-26's.

Eaker said the Air Reserve will be comprised of 34 combat groups divided into 131 Air Reserve detachments including 17,500 reserve combat pilots, 5,000 staff pilots, 20,000 non-rated officers, and 45,000 enlisted personnel in the active Air Reserve. Aircraft assigned would total 2,800 and would include 400 P-51's, 400 AT-11's, and 2,200 AT-6's. Training will be offered on a unit basis and through summer camps.

Monterrey Opening to Attract Private Fliers

Private fliers from states are expected to fly down to Mexico for the dedication of "Parque Anahuac," new civil airport scheduled to open April 27 at Monterrey, Mexico. A group invitation has been issued to the Texas Private Fliers Association by Club Aereo de Monterrey, sponsors of the ceremonies.

Pilots who will make the trip should obtain tourist cards from a Mexican consulate, cautions W. B. Matthews, of San Antonio, secretary of TPFA. If a consulate is not located in a pilot's home town, the card may be obtained at Fort Worth, San Antonio, or when clearing the border at Brownsville or Laredo. Matthews also reminded pilots to carry proper ownership papers and, if flying a plane belonging to someone else, the pilot must have the owner's written authorization to fly into Mexico. TPFA members will gather at San Antonio to leave there in a group on April 26, stopping at Laredo before flying on to Monterrey. Hotel reservations should be made well in advance through Club Aereo de Monterrey.

Aeronca Schedules 50 Planes Daily as Vandalia Factory Space Acquired

Aeronca Aircraft Corporation has acquired 75,000 square feet of additional manufacturing space at Vandalia, Ohio, to relieve facilities at its home plant in Middletown. The Aeronca Chief was scheduled to begin production April 1, with total production of the Champion and Chief exceeding fifty per day at Middletown and Vandalia. The new space will be used for manufacturing, offices, warehouses, and flight operations, and more than 500 persons are to be employed at the new Vandalia plant when full production is reached.

NEWEST AAF HELICOPTER is 2-place, 135-hp. XR-9B built by G & A Aircraft, Inc., Willow Grove (Pa.) subsidiary of Firestone Tire & Rubber Co. With 28-ft. rotor, it cruises at 80 mph., climbs at more than 1,000 fpm., and has an electric-hydraulic governor which, by acting upon the simultaneous pitch control, maintains constant predetermined rotor speed, regardless of throttle condition or power used.
—(Firestone Photo.)

Postwar CAP Program Assures Comprehensive Structure, Operations

First details of postwar Civil Air Patrol organization and operation are contained in recommendations prepared by special committees and approved by Wing Commanders from 48 states at a recent conference in Washington, D. C. The approved recommendations were drawn up to off-set the withdrawal of AAF funds on March 31, but it will be some time before the postwar plan is completely operative.

Simplifying the committee problems was the announcement by Carl A. Spaatz, commanding general, AAF, that the CAP will be maintained as an AAF Auxiliary unit until a Federal charter goes into effect. Spaatz, speaking at the Washington conference, lauded the wartime job of CAP and stressed the organization's importance in connection with future air power. In addition to maintaining CAP as an auxiliary, the AAF will continue to provide liaison officers, grant official credit for CAP Cadet training, and give reserve officers credit for volunteer instruction. Close AAF co-operation, high officers stressed, will make possible a smooth transition from a wartime to a peacetime status.

In presenting recommendations for postwar CAP organization, the committees stressed that reports embody broad principles rather than details. At the same time, they emphasized need for bringing CAP rules completely up to date and codifying all directives and memoranda. As preparation for an emergency, drafting of wartime regulations was also recommended so that CAP will be ready to go into action overnight. In the meantime, the whole plan for postwar CAP will be founded upon the following committee recommendations:

ORGANIZATION: Under a Federal Charter, CAP will be semi-military and a continuance of organization established December 11, 1941.

CAP shall consist of units located in the 48 States of the United States, District of Columbia, and Territories and Possessions. Each state, territory, or possession shall be under the command of a Wing commander. A Governing Board composed of one Wing commander from each of the nine Service Command areas, elected by the Wing commanders in that area. The National Commander shall be appointed by the Governing Board, will serve without pay, and shall appoint Wing commanders with the approval of the Governing Board. Each Wing Commander will then appoint his subordinate officers.

Further organization will follow rules of the 1945 edition of the CAP Handbook insofar as applicable under CAP's revised status.

FINANCE: Assurance has been given that National Headquarters needs no financing by membership at present; the immediate problem is to assure financing of all 48 Wing Headquarters. Certain Wings have already handled individual financing satisfactorily and, for Wings unable to do this, the committee recommended air shows and exhibitions given with AAF support, benefit performances, carnivals, dances, and dinners with prominent speakers. If these suggestions fail to raise sufficient money, an annual fee of $12 for officers and $6 for enlisted members was recommended. Should the last method fail, Wing commanders may request an allotment from a CAP National Fund. In no case shall the aggregate amount raised and allocated exceed $5,000.

All Wings will co-operate in raising a National Fund which will then be used to aid Wings needing financial assistance. If funds are needed to maintain National Headquarters, these will be deducted and the remainder distributed annually to the 48 Wings; 50 per cent among the Wings and 50 per cent prorated to the Wings on the basis of state population.

As an only alternative in case methods recommended are inadequate, the committee suggested each member be asked to pay $1 into the National Fund on or before April 30, 1946.

The financing plan is believed necessary only for the immediate future since it is anticipated ample funds will be forthcoming soon after CAP is established on a civilian basis.

TRAINING: A broader Cadet program, an active senior flying program, and large-scale purchase of flyable aircraft and surplus training equipment were stressed. Creation of new aeronautical departments in the schools in accordance with the CAA and the U. S. Office of Education were urged as part of the Cadet program. Courses should follow the general subject matter of CAP Training Directives 35 and 36 but should be revised after careful studies to meet Cadet preferences and AAF reserve requirements. Aircraft operation and maintenance should be stressed from a vocational standpoint. The Cadet program should also cover building and flying of model aircraft, flight scholarships for qualified Cadets unable to pay for flight instruction, rifle marksmanship, and intra-unit competition, and outside social activities.

Stressing the need for an active senior flying program, postwar plans call for an increased number of flyable planes, interest-building training such as Mark IV Navigational Chart, mock-ups, and synthetic devices. Arrangements should be made with the Chief of the Militia Bureau in Washington for use of State Guard bases, airports, and armories by CAP units. Link trainers, flyable aircraft, and surplus training equipment, should be purchased in large-quantities to obtain lowest prices.

OPERATIONS: Flight operations will be under direction of Wing Commanders and it will be their duty to conduct an air show once a year in co-operation with the AAF. CAP will continue to perform missions of mercy, operations flights for governmental agencies, Cadet orientation hops, and mass cross-country flights. Every effort must be made to maintain high standards of safety and efficiency.

EQUIPMENT AND SUPPLY: A plan should be established for procurement of flyable aircraft and other essential items through group or volume buying, sale to CAP at token prices, or assignment of surplus property. Need for the following equipment is essential: Flyable aircraft, usable radios, training aids, photographic equipment, office supplies and equipment, Cadet uniforms, surplus buildings.

COMMUNICATIONS: Nation-wide network of radio relay communication stations should be set up; FCC should be asked to assign a frequency or frequencies for CAP use. To facilitate search and rescue operations, a supplementing frequency should be provided. All units should obtain as much useful Class 26 and surplus communications equipment as possible.

MEDICAL, PHYSICAL: National medical officer will supervise and assist Wing medical officers; Wing medical officers, appointed by Wing Commander will recommend to group and squadron medical officers. These will follow directives in CAP Handbook; use examination card previously used for Cadets.

PUBLIC RELATIONS: Each Wing should publish a monthly magazine, continue weekly National Headquarters news letter; write history of CAP for War Department archives and publish in book form, proceeds to go to CAP public relations. Release story each week to all U. S. newspapers on CAP wartime activities.

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The Lyon Computer (Plastic)	3.00	Coordinate Azimuth Ring for E6B	1.00
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PORTS OF Call

Arkansas Roundup—Harrison is issuing $15,000 additional bonds for airport improvements. That Boone County city's air show drew a crowd of 5,000 persons recently.

In Blytheville, Edwin Stewart and Eugene Hood, ex-Army pilots, opened the second airport on Highway 18 one and one-half miles from town. Three hangars are under construction and a half-mile landing strip 430 feet wide is being graded and sodded. The two pilots will handle Piper Cubs and Beechcrafts; will conduct a flying school and charter service.

The Blytheville Municipal Airport is under lease to a special aviation committee composed of Cecil Wroten, chairman; Orville Mitchell, Charles Rose, Dr. L. L. Hubener and Dr. George Cone. This older port has a 15-plane hangar and small office. Johnny Fields conducts the school.

After an inspection of facilities Hope was assured a temporary permit by visiting CAA officials from Fort Worth for its Southwest Proving Ground airport. William Berry of the Fort Worth CAA office has been in Hope supervising the temporary operations there.

Carlisle's airport became a certainty when Perry and Clarence Lilly and Walter Hauk purchased forty-nine acres on Highway 70 adjacent to the Carlisle Athletic Field and started erection of a hangar, filling station and lesser buildings.

In Little Rock, Brueggeman, Swaim & Allen, architects, are preparing plans for $1,000,000 in airport improvements at Adams Field. On the North Little Rock side, the Central Flying Service, which owns an ample strip, is preparing for improvements which will make their field an up-to-date auxiliary installation. Central operates with three other services off Adams Field on the Little Rock side. Claude Holbert and Edward Garbacz own Central.

Clarksville Airport, Inc., became an incorporated concern for the purchase of forty-two acres south of the present airport in an expansion movement. Hangars are to be built on Highway 64 which passes the additional acreage. The incorporators are Don Hamm, Russell Tolbert and Audley Scarborough.

Stuttgart Aviation Enterprises announced its appointment as Taylorcraft dealers in seventy-four of Arkansas' seventy-five counties. The firm is composed of William F. Pool, Jr., and William F. Harpel, who have leased the Prairieville Auxiliary Fields. They furnish planes for charter trips, offer flight instruction, and contract seeding and dusting.

Harrisburg's airport, built by two private citizens, has been officially recognized as meeting CAA requirements. Ben Powell, Harrisburg automobile dealer, and Buel H. Crider, B-24 Liberator pilot recently discharged, constructed the field which has three sod runways of 1,400 to 2,000 feet in length. The firm has the Aeronca franchise for that territory. Construction of hangars and other improvements is planned.

Construction of a $60,000 hangar at the Jonesboro Airport is well under way. The structure is being financed from city water and light plant funds.

Shop facilities and a spare parts department have been added to the Camden Flying Service plant located at Grayson Field. Licensed mechanics have been secured.

Birmingham, Ala.—*by Edith Wideman.* Reconversion in aviation has gotten under way in this section—beyond just a lot of talk. We are convinced from the course of developments recently that the war is really over and we can look forward to some real peacetime aviation activities. The 12th National Air Carnival to be held June 1-2 as the first since 1941, with Steadham Acker directing, already has us tired, blistered and battered from the wear and tear, and the fun hasn't nearly begun. It promises to be a real event as of old.

The State Department of Aeronautics has given us quite an array of plans they have uncovered over the state—forthcoming or presently upon us and we quote (Who? Asa Rountree, of course): Demopolis is seeking location of the AAF Guided Missile School for Boykin Field. . . . Dothan Aviation Corporation is planning construction of a number of private hangars. . . . Mayor H. W. Vann of Hurtsboro has proposed an airport site and has requested inspection by CAA and Alabama Department of Aeronautics. . . . At Montgomery negotiations are under way seeking transfer of Army installations and transfer of the airport to the city. End quotes—well, almost, for at Montgomery the fixed-base operators over the state met with 100 per cent representation to organize a fixed-base operators' association. This has long been a needed organization in Alabama and should prove to be helpful not only to the operators themselves but also to private fliers, both in and out of state.

California—*by Tony Hagmann.* Everybody here is P-38 happy . . . or so it seems. Nadine Ramsey, of Long Beach, bought one and got a write-up fittin' for fair.

Next we heard Tony LaVier and Sammy Mason bought one of the Ypees, and have exhibition plans for its future. Which puts the Cleveland Air Races on the agenda for sure. Harold Johnson, out at Lockheed (so is Tony), is said to be dickering for a fast war fighter which will churn up the air more than somewhat.

The movies have "tooken to the air." Andy Devine bought the flight services at Whiteman's Airpark and he really is out there operating same. He joined the NAA, went breakfast flying to Barnes with the Falconairs, ate ham and eggs (to hen with his figger!) and is just like anybody else with the air bug. He's regular.

Edgar Bergen bought a field, Montebello, and has paved it up to the hilt . . . have flight services of all kinds . . . and a darned good restaurant on the field. He drags in some flying folks like Ray Hendricks, manager for Most and Bacon (who operate the field); Major Sonny Behrens, a B-29 pilot who has lots of ribbons; Captain Ray Goodrich . . . and beautiful blondes like Betty Tackaberry from Honolulu.

An old airport has fallen under the hammer to money. Alhambra Field, which gave birth to some famous fliers and was the home port for the west end of TWA and Western Airlines, is now getting ready for cottages and roses. Some realtor bought the property for $1,000 an acre more than a flying field could pay . . . and now it's past history. Leaves Alhambra with not a penny's worth of airport . . . and a million dollars' worth of yen to fly. Sad.

We made a CX with Slim Kidwell to a place called Glen Ivy Springs, at Corona, California. If you fly out here look it up. The place is an Inn of great fame . . . food, which

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is in this world, has a Swedish flavor. They have a swimming pool with warm water (comes out of the ground that way), Swedish steam baths . . . bar . . . and rooms you will call solid ease. The fact the owner's name is Axel Springborg has nothing to do with the Swedish flavor. His son, Dr. Warren J. Chandler, is a flier. So, now they have an airstrip adjoining the Inn . . . and a gentle wing wag will bring out a car for visiting pilots. By the way, here you will find real Southern hospitality . . . Slim Kidwell owns Central Airport and it's just lunch time away from here in a Luscombe.

Les Byars of Long Beach told us the new Swift got here and he will give us a ride in it soon as they open shop in LB. His partner is Kay Daughtery, whose husband was a well known western pilot. Kay is president of the LB Breakfast Club.

Pancho Barnes fed 100 from Whiteman's Airpark this month, on her desert airport . . . and invited the rest of the aviation world to "come and get it" . . . definitely recommended.

TONY ON TOUR WITH TEXACO . . . Don Rainey heads up the aviation department for the Texas Company on the West Coast. Don is a man of great aviation background. He was with the CAA; he flew the Atlantic on one of the first flights; he's a QB; NAA member and one fine-flying fellow. And besides he knows some mighty nice people 'n me. The Texas Company has a twin-engine Beech stationed here complete with pilot Bill Dirlam and co-pilot "Junior." More about him later.

One morning before smog crept over LA and made visibility as unwelcome as an extra spot on a dice cube, we took off from LA Municipal Airport (Hi, Woody) headed for Phoenix. We went by way of Burbank in order to pick up Frank Goad. Frank heads up another part of the Texaco aviation department . . . something to do with the mechanics of aviation. He usta beaver for the airlines and just came here from Chicago.

To fix up the Texas Company a little bit more, Torrey Webb is the resident vice president. He flew back when the Army carried the mail and gradually worked his way up to the tip-top. Which, as the white horse would say, means a pile of nice fresh hay. Drewy Beaton is territorial manager. Drewy is an ole southern boy from way back. Thirty years ago he started out as an office boy and worked his way up like a school girl fills out a sweater. Brother, that's good.

On with the flight. We beat out an air trail to Phoenix, landed and met Walt Fulkerson, manager of Sky Harbor. We hangar-flew the Oklahoma City Clinic days; met Cage "Trap" Dean; spit on an Arizona frog and decided the world was nice when flying. Walt is a yeller sweater man, bright and saucy. Don needled him about the color, but Walt said, "Nuts to you, it fits."

There are some musts in Phoenix. You must stop at the Westward Ho and wire for reservations; eat at the Green Gables; ask W. L. Hixon at the airport to see the Commonwealth (he's vp at Mercury Flying Service); ask Herb Steidel, TWA manager, how he likes the Connies; eat at the Skychief (prices are reasonable); see Rocky Nelson who loves to talk about Ercoupe; and check the rail sitters who soak up sunshine while they wait to fly.

This we did, and we met John Livensparger and Jerry Koenig watching vapor trails left by a P-80; Margaret Brown and Virgil Brown were talking spins; Ray Wilson and Mary Lewis were "just sittin' "; Elgin Newall was talkin' and Joe "Chief Bum" Culling was laughin' at a joke. Or you might see Ruth Reinhold, who runs Sky Harbor Air Service for Carl Knier, hurrying like a tumbleweed in a high wind at Pecos. She's busy! Ruth told us about John A. Platt, who bought an Aeronca, and Gus Stallings' first 150 Stinson. Then we had a cup of coffee with Walt Fulkerson. And took off for—

Prescott, Arizona—This is deer huntin' country and summer homes for Phoenixites are dotted around like oil wells in East Texas. G. W. McCurdy is the airport manager and has "one of those little red trucks which make such good time" on the field. He has some little dots on his hand which we asked about. Seems Fred Crowell, the Texaco man, is a full chief of the Hopi Indian tribe and G. W. is a tribal member, too. They get these tatooed dots for a ritual with snakes which still gives us the screaming meamies to think about. Scared us out of four gallons of Texaco gas.

Next, we flew to—

Nogales—Right on the border of old Mexico sits this nice two-way paved runway with a fine hangar. Clarence Smith, manager will meet you and pretty soon you'll see a trail of dust with Charlie Frazier ridin' in front. You'll be introduced to Nogales—but good. Charlie has been in that country so long the tomatoes growing in Mexico ask him when it's time to get red. He is the Texaco representative and he really does.

From the Rancho Grande Hotel (very dudey) you can see old Mexico and, of course, you go over in search of nylons. Ain't any. But there is anything else you want. . . . we heard.

Next day, you'll meet Bill Beatus. He owns the International Airport, and can be remembered from Brownsville, Texas, days. He remembered SF when it was "little-bitty." He can fix you up for flying into Mexico and will give you good advice on the subject.

On account of everything, you find you have to go back to LA. In this ship you make time like the government makes Victory Bonds.

Dallas—*by Vida Foster.* Beautiful flying weather has really opened up in Texas and we learned in the Executive Transport Company's twin-engine Beech that Ardmore, Oklahoma, is quite close to Dallas and Lake Texhoma looks like a lot of water even from six thousand feet. Bob Goddard is just back from the wars and we found him operating the municipal airport at Ardmore, doing line service and reconversion. He is also the Skylark distributor and the Aeronca dealer for his territory.

Morris Jacobs, who operates as Jacobs Air Service out on Preston Road in Dallas, has one of the cleanest shops we have ever been in. But don't let the methodical arrangement fool you. We aren't too mechanically inclined but we recognize superior workmanship and equipment when we see it. After making a thorough inspection of completed jobs and those in process, we decided that lightplane owners needing major overhauls or any type electrical work would benefit by dealing with Mr. Jacobs.

Construction of the new Highland Park Airport is progressing at a rapid pace. One large hangar is nearing completion and we saw Bill Campbell, of Weatherly-Campbell Aircraft Company, watching it with a gleam in his eye. Runways are graded and they were even moving a hill so as to make things "on the level."

We finally tracked down that elusive individual, Jimmie Marshall, and got the lowdown on his new field in Dallas, located at Buckner Boulevard and Lake June Road. A 3,000-foot asphalt runway is completed and Jimmie expects all buildings to be ready to occupy by April 30, Also, Jimmie expects to begin making deliveries of the first new Culver Simplifly planes in April.

When we went into the CAA Love Field office to pick up blanks for a student pilot's permit, we saw Wilson Germany, who reports that his Dal-Air Lines is operating regularly and smoothly, with stops in Tyler and Lufkin, between Dallas and Houston. He is planning to inaugurate a new trip from Beaumont to Houston to Dallas and promised us a round trip any day.

Beginning Monday, March 25, D. Harold Byrd was to start operation of his "air taxi" service between Dallas and Fort Worth, flying Noorduyns.

For years we've had a "yen" to line our walls with photographs of our friends, but Charlie Short, manager of Tulsa Municipal Airport, has really "done it" in his office. The likeness of Buck Rowe was smiling at us as we entered. We saw pictures of many of our friends, including Jack Story, Aubrey Keif, John H. Q. Burke and Charlie Hanst. The great and near-great were displayed side by side and many of the inscriptions tugged at our imagination. Tiny gold stars pasted on the glass of those of Will Rogers, Wiley Post, Amelia Earhart and Ernie Pyle told their own eloquent story.

The first new Cessna 140 was flown from the factory to Mustang Airport by the Womacks and has created considerable interest among spectators and prospective buyers alike. "Toots" Womack took us for a hop around the field, and it's a mighty nice airplane.

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SOUTHWEST...SERVING AVIATION SINCE 1925 IN THE...SOUTHWEST

Kansas City, Mo.—*by Marion Melcher.* Bill Stout, the aviation wizard, was in Kansas City for a week. The TWA Club had him as speaker. Following a short talk by Stout's Kansas City host, Lou Holland, who recounted the story of how our municipal airport came into being, Bill Collings introduced the speaker, whose topic was "Imagineering." After I'd made notes I agreed with Collings that Stout has been and continues to be ten years ahead of his time. The following evening, at the year-around Lake Lotawana home of the Hollands, I saw Stout-the-engineer as a genial guest, strolling over to the small organ and blending the soft tones with those of the Rhythm Riders, or doing a bit of "cheesecake" drawing on a paper pie plate, handing the finished sketch to the model, or teaching me, f'rinstance, how to dance an old Spanish folkdance. That man's as versatile as Spring weather!

Non-scheduled transports hauling air freight in and out of Kansas City are knocking at the airport commissioner's door for admittance. Whether we have them or not depends on further studies of operating costs. These "tramp steamers of the air" are an outgrowth of the world conflict, and many a young pilot is wanting to set up in the business.

Looking out of my window at Sky Hobby, I can see the black and gold sign of Air Associates on the smoke stack of their near-downtown location. They've set up a neat unit in town and the new office is now in full swing.

NAA's active in Kansas City once again. Dorman H. O'Leary was elected president, with Fred Goldman, vice president; Preston Doerfler, secretary; Bill Kraxner, treasurer; George Clay, Norman Ness, Hugh Coburn, B. T. Flannery, W. E. Briece, K. E. Van Scoy and John T. Rhode, directors. Going on with club activities, the Air Reserve Officers have reorganized, and Johnny Ranson was elected president. Chuck Daily is vice president.

Turning to women in aviation, WNAA and Stephens College are co-sponsoring a "Women in Aviation" conference April 22, 23 and 24. Speakers are tentative, but the program as outlined is impressive. Gladys Dallimore, National WNAA President, is discussion leader on the opening program. I'll tell you more about what happens another month because I plan to attend at least part of the sessions. Arrangements are being made for 250 visitors. In a crowded college town like Columbia, Missouri, that's a real housing problem.

The end of April will see Kansas City WNAA members off to the luxurious Broadmoor Hotel in Colorado Springs to attend the WNAA National Convention. "Women's Role in the Air Age" is the theme selected by program chairman Frances Carpenter of Denver. Among those attending will be Kansas City unit's newly-elected president, Nadine Nicholas.

Marshall, Texas—*by Bill Aechternacht.* The land comprising the former Marshall Municipal Airport has been deeded to Harrison County for the construction of the new Harrison County Memorial Airport. Engineers in two months will present plans and cost of construction of the airport to the Commissioners Court. Work on the new airport should start soon after the plans are accepted.

Capt. Ladd Moore, formerly of Marshall but lately with China National Aviation Corp., has returned to China and CNAC.

Mildred Carney and Beth Smith, both of Shreveport, stopped here recently on a hop from Mansfield, La., to Shreveport. We enjoyed the girls' company very much.

Davis Boone and Bill Aechternacht, both of Marshall, took a skyview of Marshall and Longview from the air recently.

All of us had stiff necks for several days, after watching a plane sky-write the name of a popular soft drink.

Phoenix, Arizona—*by Marjy Hardman.* Newcomers and new concerns are making themselves known and very welcome here at Sky Harbor Airport. Quick Dusters, Inc., is a corporation formed for the purpose of converting aircraft to dusters, engaging in the cropdusting business and helping others to enter the industry. G. C. Quick, formerly with Marsh & Franklin, is going into business for himself again and is president of this company. Vernon A. Dorrell, former president of Mid-Continent Airlines and now vice president of Ryan Aviation Associates, is vice president. Bill Hosmer, just fresh from the Army and Aircraft Accessories Corporation at Burbank, is vice president and sales manager, and Monty Thrall, of Ryan Aviation Associates, is secretary-treasurer. Quick Dusters, Inc., temporarily occupies building T-13 in the line-up of Navy barracks on the field.

Air-Safe Sales, Inc., distributor for Ercoupe in Arizona, New Mexico, Nevada and West Texas, has been organized for some time, but has just recently moved company headquarters to Sky Harbor Airport in the back of the Southwest Airway building. Their officers are: J. E. McEldowney, president; R. D. Searles, vice president and treasurer. Grace J. Cahill is secretary and L. Lee the accountant.

The old Phoenix Aviation Club (first organized in 1936) has reorganized with Leo Gliem, president; Dr. L. D. Beck, vice president, and Ruth Reinhold, secretary-treasurer. The first postwar flight was a picnic at Casa Grande. Members attending were Mr. and Mrs. A. C. Anderson, Dr. and Mrs. L. D. Beck, Walter Butler, Ruth Reinhold, Mr. and Mrs. E. O. Davis, Mr. and Mrs. C. D. Doake, Mr. and Mrs. Leo Gliem, Mr. and Mrs. Don Keller, Mr. and Mrs. Carl Knier, Mr. and Mrs. Henry March, Mr. and Mrs. John Rockwell, Dr. and Mrs. Gordon Schackelford, Mr. and Mrs. Walter Fulkerson, A. Lee Moore and Jack Perkins. Guests were Mr. and Mrs. Mike Mitchell and Robert W. Reinhold. Two doggies, "Tootsie" and "Pluto," also made the trip.

Veterans taking advantage of government flight training and ground school through Marsh and Franklin are: C. W. Ankerberg, B. H. Bitner, J. Cason, J. H. Cooley, W. H. Cole, C. R. Crowl, H. A. Dunham, J. R. Egan, Paul Etter, Roy Evans, M. C. Feller, T. J. Flanagan, F. M. Garner, P. E. George, Fred Grogan, Melvin Harrison, Charles Hastings, John F. Irwin, Warren Johnson, Quenton Kirkpatrick, Donal Lagesse, J. F. Long, W. H. Long, Royal Marks, Lloyd Martin, Elizabeth Mathe, Clyde Mathe, Desmond Matthews, Goode Maxwell, Lawrence McCullough, John Mitchel, Jack Palmer, W. H. Puntenney, W. J. Ralston, Richard Rill, Nyles Schmidt, Claude Seybert, F. K. Sidwell, G. E. Simons, Bill Smith, Charles Stewart, Henry Stewart, Gail Taylor, Charles Tabor, J. H. Tanner, Joe Thompson, Harold Walker, W. M. Wiese, Frank Wood and C. R. Ward. Ground school classes are held at Phoenix Junior College three evenings a week.

Marsh & Franklin handle both Taylorcrafts and Swifts. At present they have a Swift demonstrator and are operating six new T-crafts in addition to their other ships, besides the Vultee they had relicensed and are using for instrument work. Two twin-engine Fairchild AT-21's have been acquired for their cargo division. Their solo students for the past month include: Allyn Cornell, J. R. Egan, F. M. Garner, Paul Etter, P. E. George, Desmond Matthews, F. K. Sidwell, Henry

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Stewart, Harold Walker, Roy Evans, Charles Hastings, Charles Stewart and Melvin Harrison.

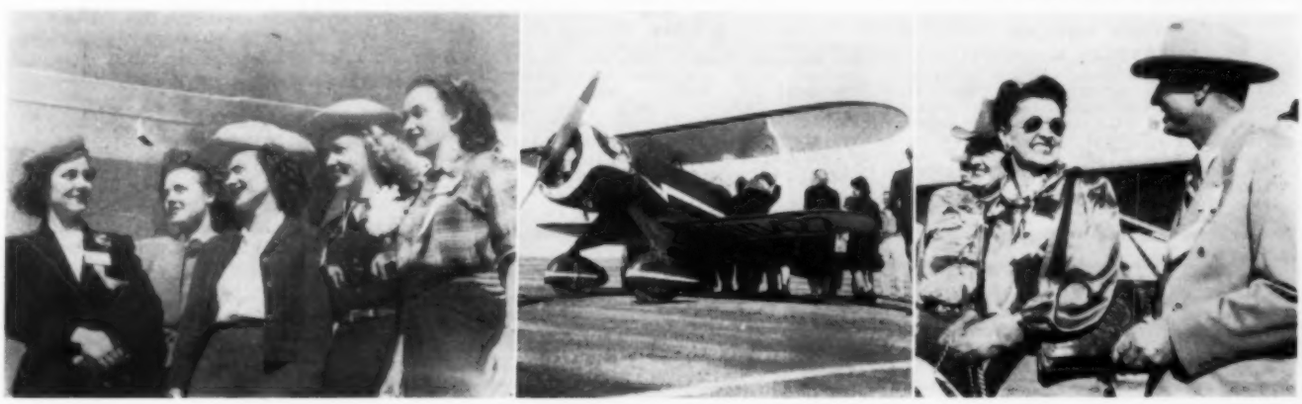
Mercury Flying Service, Inc., also has a program for former GI's. Enrolled with this school are: Annette Sanders, Richard Allen, Fred Babcock, Billy Beshears, Alvin Campshure, John Davis, Harold Faulkner, Billy Gray, Clark Griggs, Fred Jennings, Jr., Ralph O. Lemley, Thomas Malatesta, Lawrence Nelson, Roy L. Riess, Thomas Wygal, Louis Halpern, Frank T. Flake, Raymond Anderson, Arthur Ganim, Raymond Scott, Chauncey Clapp, Robert Gwin, W. P. Roberts, Jr., Kenneth Pearce and Woodrow White. Mercury's new Skyranger is kept very busy these days, which must make Claude E. Hixson very happy. He has come down from Portland, Oregon, to take over the sales department of Mercury. Roy Edwards will represent Skyrangers at Winslow, while Ernest McClary has been chosen dealer at Coolidge.

Ray Morales, over at Anderson's, informs us that George Bestian received his private license, as did Pvt. Finch. Solos include Cecile Curtis, Dick Johnson and Mary Jane Hutsell.

Mace Flying Service had two happy people this month, when P. E. Henrikson and Maxine Owens received private licenses. Edwin Barthel ventured into the blue alone for the first time. George Culvert bought his AT-6 from Mace.

Weatherford, Texas—*by Mary Royse.* Getting up at the crack of dawn and flying to some nearby town for your breakfast is great sport. We joined a breakfast flight sponsored by Skyline Airport, Dallas, and flew to Weatherford, sixty miles away, in a 1946 Piper Cub which belonged to George Lane of White Rock Airport; he claims it's the first privately owned '46 Cub in this area. Sandal Dailey of the Dallas *News* was along on the flight. From Skyline Airport were Charles Orr and Fred Nagle, co-owners, both former test pilots at North American, flying a Stearman, as were Jimmy Davis and Tommy Norton. Jack Brown and Clifford Swort came along in an Aeronca and W. D. Fridge and Herman Deitrich were in a Luscombe. Fridge is the Luscombe Dealer at Skyline. We were really greeted at Weatherford by some of the local lads. Ford White was the official greeter—he's a CAP Squadron Commander, a private pilot and undertaker by profession. T. C. Hatchett had a big hello for us—he's the vice president of the First National Bank there and also a pilot. Bill McDavid, owner of that wonderful eating spot, "The Nook," was busy shaking hands with every one and seeing that they were well fed. Merrill Kayser, manager of Municipal Airport, was busy tying down the planes, and Dr. Charles Yancey, CAP'er and photographer, took pictures of the early morning pilots and planes. Misha Kantor, engineer with Luscombe Aircraft, was along telling at great length about the new single-seater which he designed. Dorothy McRae and Max Stark came in for the "bounciest" landing. Morton and Ann Mandell landed at the wrong airport in Weatherford and wondered why the reception committee wasn't there. Judy Morris and Mary Stark arrived one hour late, making excuses about "not really being lost." The Stearmans seemed to outnumber the other planes on this trip.

POSTWAR CROSS-COUNTRY FLYING is expanding all over the country with the coming of spring and new airplanes from factories. Preceding the general renewal of air tours was a series of recent Texas aircades in conjunction with Fort Worth's annual Fat Stock Show, with participants ballyhooing the show and its Southwestern Aircraft Exposition at each stop. Spectators attracted to local airports by the fliers are shown above looking over a new Aeronca Champion, a Globe Swift and a line of 1946 Ercoupes. Inset shows C. W. Wofford and Ed Williams of Magnolia Petroleum Co., which donated fuel. In the strip below are: Left, a bevy of high school girls who were awarded a trip on one of the aircades; center, Doc Estes' widely known Laird Special of inverted-flight fame; right, Mrs. Ruth Taylor and her daughter, Bobbie (in hat, at left), of Fort Worth and Herbert Martin of Littlefield.
—(SOUTHERN FLIGHT Photos.)



LETTERS TO THE EDITOR

(Continued from page 14)

filling station on every other corner. What should be expected when they start helling around the country in their own airplanes? How can any regulation be devised to prevent them from breaking their necks?

It is a tough problem, but I think some improvement might be attained if there was a sensible, practical and positive way of rating pilots with respect to the equipment they fly. There never has been. The old gross weight idea was not practical. The horsepower deal is still worse for obvious reasons. With the horsepower ratings a pilot could take a flight test in a Cub Cruiser and be licensed to fly a Culver. Why not, same engine. Worse than that he could take a flight test in one of the primary trainers and be licensed to fly a Spartan Executive due to the 50 per cent under and 50 per cent over idea. At present there is practically no system of rating pilots.

I have been toying with an idea that might work out okay. It has always been my idea that the one thing that determines flying characteristics more than any other factor is *wing loading*. Take any two airplanes with the same wing loading and you will find similar flying, stalling and landing characteristics. Minor differences will be caused by different wing curves, but generally they will handle a great deal alike. The size of the airplane, gross weight, or power of the engine has nothing to do with flying characteristics. Due to aerodynamic features and engineering differences the handling qualities may vary a little with different airplanes of the same wing loading, but the general flying characteristics will be about the same.

If this idea were used flight tests should be taken with the airplane loaded to the licensed gross weight and the wing loading determined accordingly. If a pilot passed a test on a single-engine plane with a wing loading of twelve pounds per square foot, his rating would be, for example, "Twelve pounds, single engine." He should then be considered competent to pilot any single-engined aircraft with a wing loading up to twelve pounds. The "land" or "sea" classification would also have to be considered, of course.

Many pilots will contend that speed has a lot to do with flying characteristics. That may be so, but then you get right back to wing loading again. Not many airplanes with a low wing loading ever went very fast. If they do go fast with a low wing loading, the stalling, landing, and flying characteristics at slower than normal speed will still be like any other airplane with a comparable wing loading. Most high speed planes so far have also had a high wing loading.

Something like this still will not prevent people from committing suicide, but it might at least be an improvement.

JIM ARMSTRONG.

Dallas, Texas.

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Sky Hobby, Inc., is a newly organized wholesale outlet for hobby supplies in Kansas City, Missouri. As representatives of the leading model aircraft and engine manufacturers in the Kansas City territory, Sky Hobby, Incorporated, becomes part of a thirty million dollar industry.

F. L. Fraser is president of Sky Hobby, Inc., whose general offices are located at 804 Grand Avenue in downtown Kansas City. Marion Melcher is secretary-treasurer of the new corporation.

10 YEARS AGO in *Southern Flight*

EDITORIALS: In a guest editorial, Rep. J. Mark Wilcox, of Florida, warned that the country was open to attack by both the East and the West, with the enemy using airplanes. He called for adequate air power for the defense of the United States. The U. S. rated sixth in air power among nations. . . . Another obstacle was removed from the path of American commercial aviation by the divorce of the airlines and the manufacturing plants.

BRIEFS: The War Department purchased 512 aircraft engines from Wright Aeronautical Corporation to power new bombers. . . . Sperry Gyroscope Company was retained by Air France to aid in sound-proofing its planes. . . . Louis de Florez perfected a device for piloting planes by sound alone—the intensity of sounds given from a small generator tell the angle of the plane. . . . TWA inaugurated an independent air express service, not joining a pool of airlines that would be served by Railway Express Agency. . . . Chicago and Southern Air Lines, Inc., purchased four Lockheed Electras. . . . Timm Aircraft Co. contracted to manufacture the Crusader airplane.

PERSONALS: C. G. Taylor, designer of the Taylor Cub and former president of Taylor Aircraft Company, resigned his position to establish a new company. . . . Earl Ward was appointed supervisor of airway traffic control, Bureau of Air Commerce.

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